

SPECIAL REPORT: A LOOK BACK AT THE WORLD'S LARGEST IMAGING SHOW

# SHUTTERBUG®

JANUARY 2015 | TOOLS, TECHNIQUES &amp; CREATIVITY

## The Extreme Outdoor Photography Issue

TIPS, TRICKS, AND TECHNIQUES ON EVERYTHING  
FROM AERIAL DRONE IMAGING TO PHOTOGRAPHING  
WILDLIFE IN THE WINTER

### WE TEST



- NIKON D750
- SONY ALPHA 77 II
- CANON POWERSHOT G1 X MARK II

**PLUS:** A 3200-MILE PHOTO TREK ACROSS THE KINGDOM OF LADAKH IN INDIA

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Flash Unit Models	Output Setting	Total WS	VLX™ Recycle	VML™ Recycle	ION Recycle
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2 Einstein™ E640s	Full Power	1280 Ws	3.5 sec.	8.86 sec.	10.13 sec.
3 Einstein™ E640s	Full Power	1920 Ws	5.3 sec.	13.0 sec.	15.8 sec.
4 Einstein™ E640s	Full Power	2560 Ws	7.2 sec.	15.9 sec.	19.2 sec.
4 Einstein™ E640s	Half Power	1280 Ws	3.3 sec.		
1 AlienBees™ B1600	Full Power	640 Ws	2.0 sec.	4.13 sec.	4.4 sec.
2 AlienBees™ B1600s 2 AlienBees™ B800s	Full Power	1920 Ws	5.27 sec.	14.1 sec.	14.4 sec.

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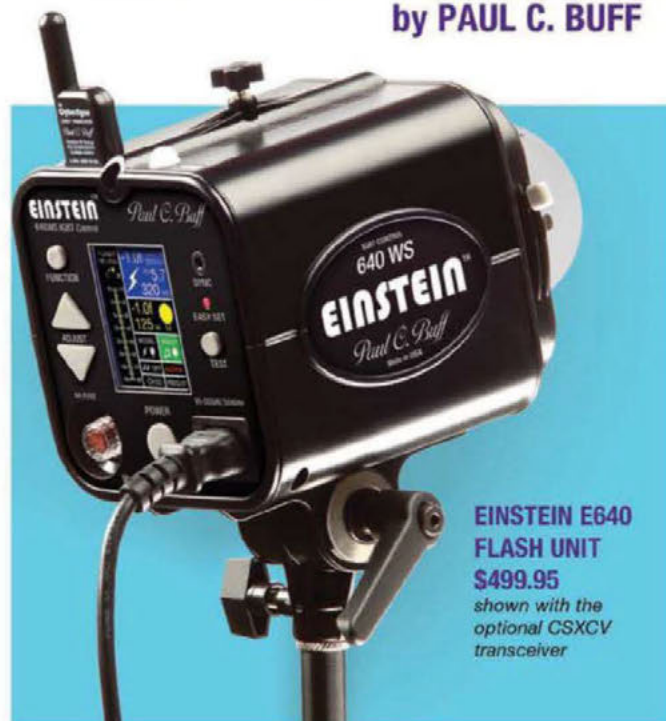
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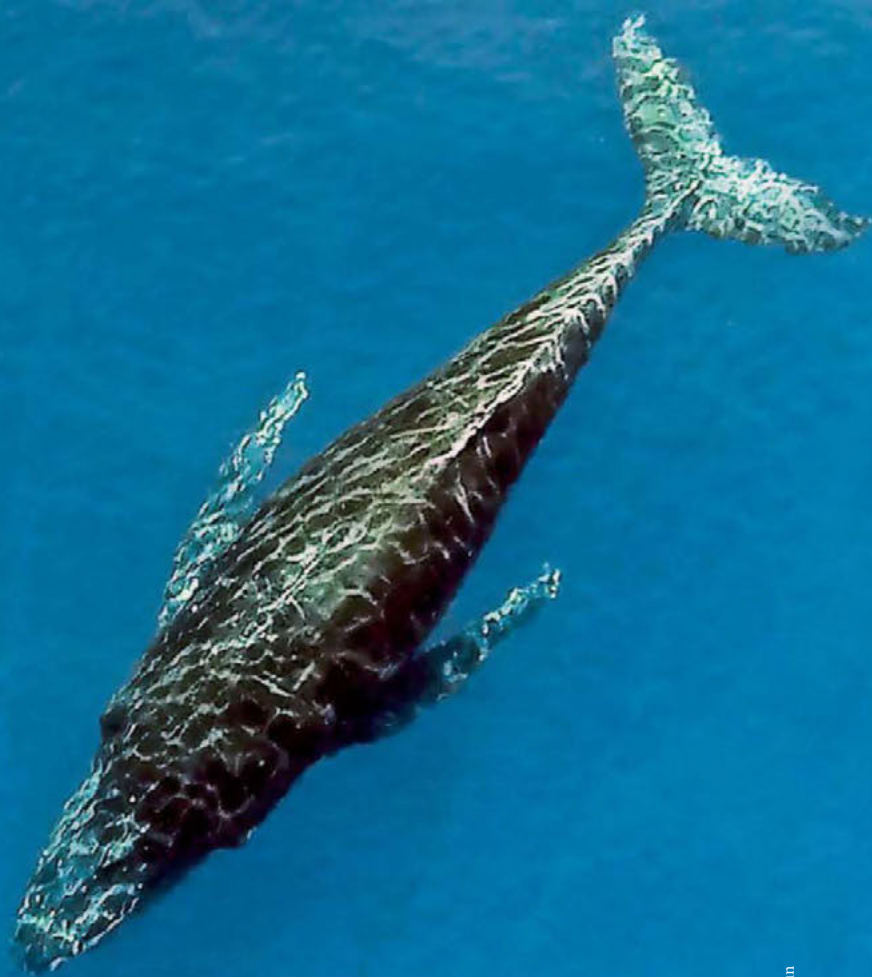
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Shutterbug Editor-in-Chief Dan Havlik shot this image of a cliff jumper in Puerto Rico while field-testing the Nikon D750. (See his review on page 54.) "These guys were real daredevils," Havlik says. "They just hurled themselves off the cliff and into the ocean like it was no big deal. With the Nikon D750 in high-speed burst mode, I was able to capture them from the apex of their jumps until they hit the water."



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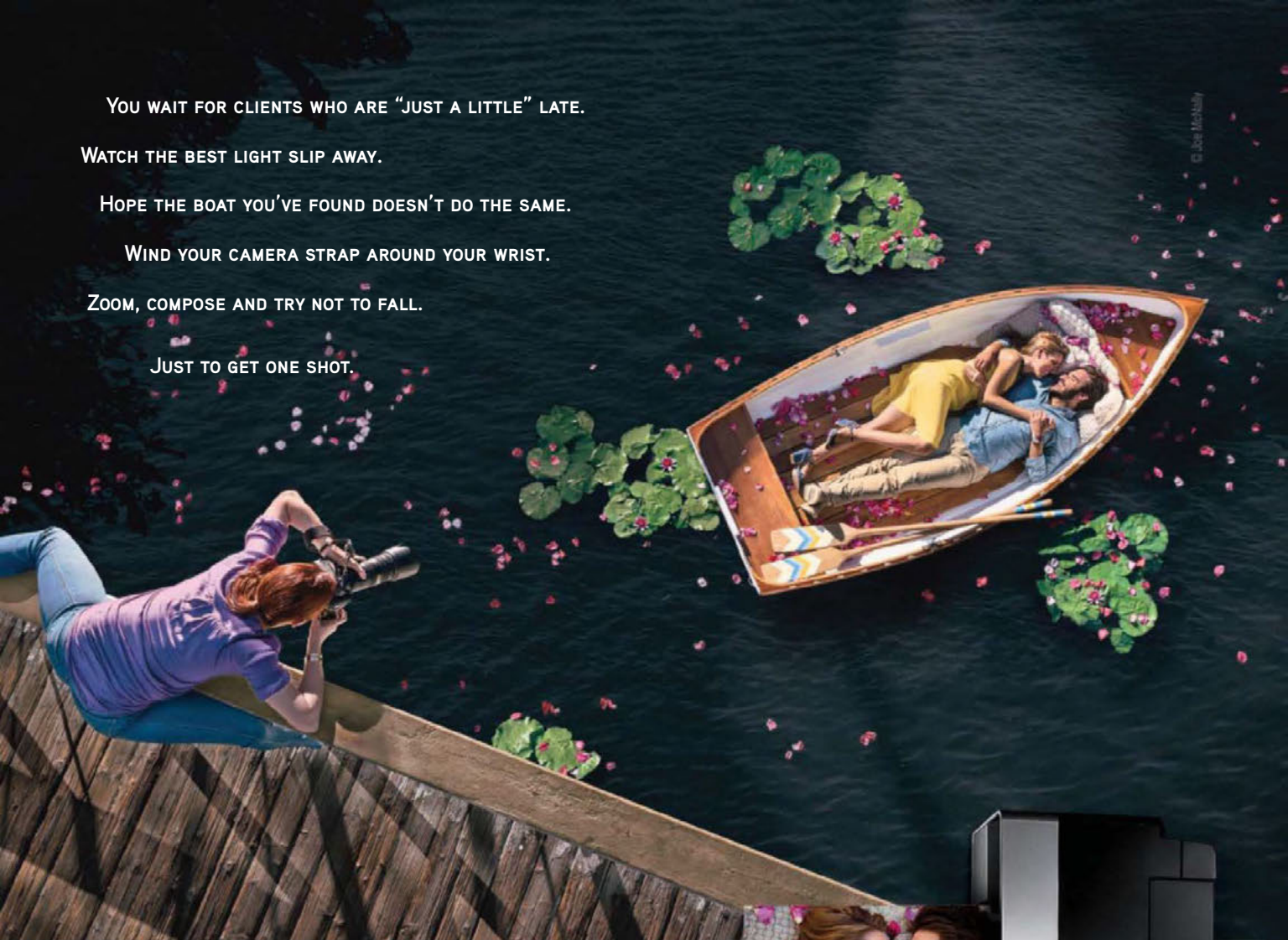
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EDITOR'S NOTES

JANUARY 2015

# Imaging Drones' Long Flight to Legality

**D**RONE PHOTOGRAPHY IS here to stay, whether the government likes it or not. That's one of the messages from Lorin Robinson's excellent round-table discussion piece "Those Daring Photographers and Their Flying Machines" on page 90 of this issue. In the story, Robinson interviews three experienced imaging drone pilots in what is part "state of the drone industry" and part call to arms. In the short span of time that imaging drones have transitioned from expensive, occasionally dangerous novelty devices to safer, lighter, and relatively inexpensive mainstream tools, we've seen the debate over their legality hit a fever pitch.

While the FAA banned the commercial use of drones in 2007, the US Congress ordered the agency to come up with a plan for "safe integration" of drones (aka Unmanned Aircraft Systems or UAS) by September 30, 2015. What that plan will include is anyone's guess but the FAA's own website says the proposed ruling "will likely include provisions for commercial operations." Or, in other words, there will probably be a pricey and time-consuming permitting process put in place but there could be a path to legality for small imaging drones—under approximately 55 pounds—by late 2015.

Of course, commercial drone use by photographers is already happening under the FAA's radar. And with only minimal resources for enforcing the ban, it will continue to happen, which is part of the reason the government wants "a piece of the action," and Congress wants to trumpet all the new jobs the commercial drone industry will generate. As evidenced by the spectacular aerial images captured by our three drone pilots in this issue, legalized, commercial UAS use will open many new opportunities and dramatic visual points of view for photographers.

In this issue we celebrate what we

call "Extreme Outdoor Photography," with aerial imaging from drones being only one example. Considering that extreme winter weather will be hitting much of the country this month, we have two pieces on how to make the most out of your photography in these challenging conditions. Rick Sheremeta offers "10 Tips for Better Winter Photography" on page 96, while Chuck Gloman explains, on page 102, the best ways to use the surrounding winter environment for portraits, including harnessing the reflective power of snow to create a warm look on a face.

I had the pleasure of visiting a far hotter location—Puerto Rico—to field test the Nikon D750 for a review in this issue. While the weather was wonderful in Puerto Rico, I put the D750 to the test in some extreme conditions, including photographing galloping horses in the salty spray of the ocean; shooting ancient Indian rock art at the bottom of a cave; and capturing images of cliff divers free-falling over a shoreline gorge. You can see some of my test images and read what I thought about the camera on page 54.

And speaking of Extreme Outdoor Photography, make sure you check out Barry Tanenbaum's fascinating interview with photographer Daryl Hawk on his amazing three-week, 3200-mile journey across the Ladakh region of India.

"[Crossed] the Khardung pass at 18,380 feet on the highest motorable road in the world...lived with both nomads and residents...explored 25 ancient monasteries and fortresses...tracked snow leopards, discovered petroglyphs and sacred lakes...had a meeting and interview with the King of Ladakh," Hawk writes in his notes about the trip on page 106.

Now that's what we call an extreme setting for outdoor photography! ■

*Dan Havlik*



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# Backlight

**B**ACKLIT SUBJECTS CAN be tricky to deal with which is why we were so impressed with the terrific entries for this month's "Backlight" Picture This! assignment. We were looking for images where backlight or strong directional light danced with the subject and boy did we get them. From unique uses of sunrises and sunsets to spotlight a silhouetted subject, to plays of light through fog, morning rays through a window, and many beautiful backlit scenes of nature, readers posted some fantastic images on Shutterstock.com for this assignment. Here is a selection of 10 of our favorite backlit images.

## RIISING AT THE HOUSE OF THE SUN

► "This was taken at 6:21 am, at 10,023 feet on top of the 1.1-million-year-old shield volcano Haleakala, or House of the Sun," Krishna Gupta writes. "Watching the sun rise over the clouds was truly a majestic, awe-inspiring event and well worth the 1:30 am wake-up time." The image was shot with a Canon EOS 5D Mark III and a Canon EF 70-200mm at 70mm; 1/1000 sec, f/11, ISO 100.

## BULL'S-EYE

▼ John Larsen captured this image of a pilot inside an inflating hot air balloon with an Olympus OM-1 film camera loaded with Fuji Provia film. The balloon is backlit by the sunrise, Larsen notes.



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## CREATIVITY

### PICTURE THIS!

#### WINDOW LIGHT

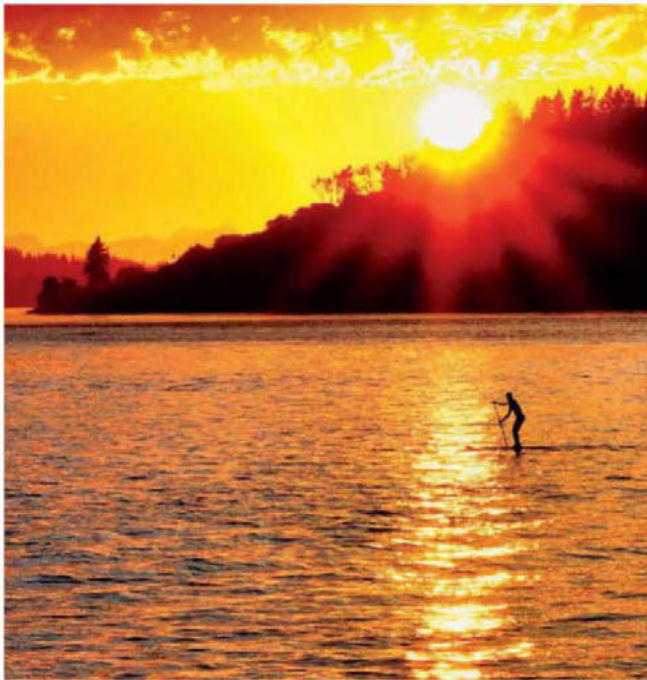
► "I captured my husband standing in the light of a window at an old mission in San Juan, Puerto Rico," Taressa Troxell writes about this backlit photo. It was shot with a Sony Alpha 77 and an 18-55mm lens at 18mm, f/4. ISO was 640 and the image was captured at 1/160 sec.

© Taressa Troxell



#### GOLDEN HOUR SURFER

▼ Sal Ahmed captured this classic sunset shot "during a beautiful day in Tacoma, Washington, at Titlow Beach." The camera used was a Sony Alpha 77 with a Tamron 70-300mm lens attached. Focal length was 90mm at f/16, with shutter speed at 1/125 sec, and ISO 800.



© Sal Ahmed



© Adarryll Jackson Sr.



© Jim Liestman

#### FOGGY MORN

▲ Photographer Jim Liestman captured this early morning fog shot with the sun backlighting the trees using a Nikon D700 and a Sigma 70mm lens. Exposure is f/8 with an ISO of 200 and shutter speed of 1/8000 sec. The exposure bias is -1.5. "There was a heavy fog in the morning so I just drove around near my home looking for possible pictures," Liestman recalls. "I liked the shape of these three bare trees with the sun rising above them."



© Diego Lapetina

#### NATURE

▲ Photographer Diego Lapetina summed up this gorgeous image succinctly: "Just trying to capture nature at its best." He did just that.

#### FROM THE WOODS

◄ "This is a capture of the Army's basic training graduating class of October 3, 2014," Adarryll Jackson Sr. writes. "This moment happened the morning before graduation, as a part of Family Day. Colored smoke bombs were tossed, and then the trainees appeared from beyond the woods. This is only but a small number of the hundreds of graduates that appeared from the woods. My son was a member of this graduating class of trainees."



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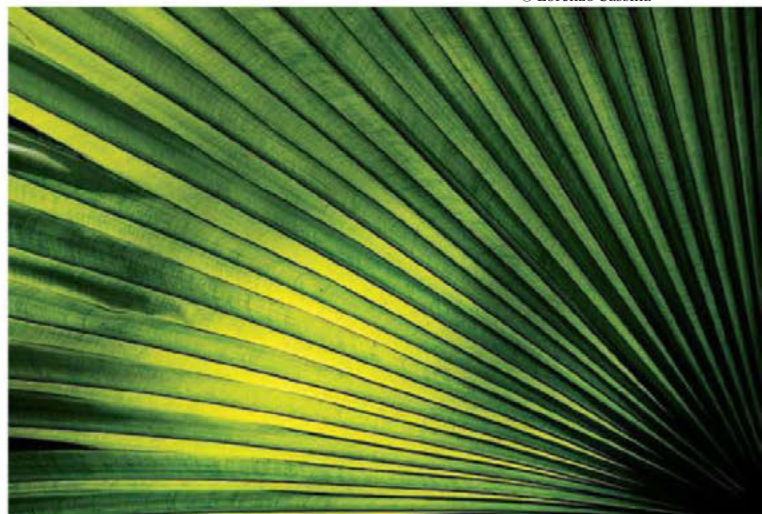
© Larry Johnson

### TOWARD THE LIGHT

▲ "The light pouring into the hallway of a school offered the perfect opportunity to frame and expose for an abstract composition," photographer Larry Johnson says about this dreamy black-and-white image. He shot it with a Canon EOS 60D and a Canon EF 28-105mm lens set at 105mm. ISO speed was 2500, and the exposure was 1/200 sec at f/8.

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### NATURE'S FAN

▲ Lorenzo Cassina photographed this palm leaf in the botanical gardens at Flamingo Gardens in Davie, Florida. He used a Nikon D80 and a Sigma 70-300mm lens; 1/320 sec, f/5, ISO 250.



© Keith Bozeman

### GRAND CANYON EVENING LIGHT

▲ This spectacular image was shot by Keith Bozeman late in the evening at the Desert View overlook area in Grand Canyon National Park. "There was a fire in the area during the time of our visit," he recalls. "The smoke from the fire created a haze in the canyon. As the sun continued to sink, the light beams that you see began to form." Bozeman used a Canon EOS 6D with a 17-40mm lens on a Gitzo tripod with a Bogen ball head. The lens was triggered by a cable release at 1/60 sec, f/16, ISO 100.

4. Click on the Galleries tab on the homepage. In the Category section use the drop-down menu to select the Picture This! assignment. Note that images are simultaneously loaded into the assignment category as well as your own personal gallery. When the Picture This! assignment deadline date has lapsed the assignment gallery will be removed, but your image will still reside in your own gallery.
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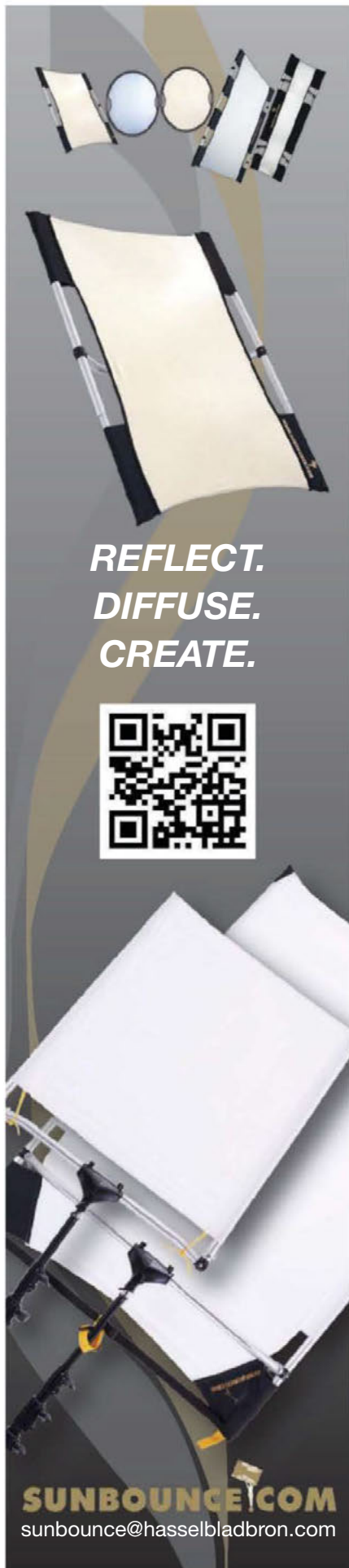
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**CREATIVITY**

## PICTURE THIS!

### OUR NEXT ASSIGNMENT: **LOW-LIGHT NOIR**

For our next assignment, we want you to go all dark and moody and share images that recall classic “film noir” movies. For those readers who skipped Cinema Appreciation class, film noir is a French term used to describe stylish Hollywood crime dramas from the 1940s and '50s. But we don't need crime scenes (necessarily). Here's what you should shoot for: gritty, high-contrast images, preferably in black and white, captured in low-light conditions. Of course, color photos are fine, too, but make them shadowy and mysterious: think Edward Hopper, not Walt Disney. Film grain effects or even digital noise are encouraged, just as long as it suits the subject.

#### DARK STALLION

I shot this image with a Nikon D3S during rehearsals for the Big Apple Circus in New York City. The horse appeared out of the mist like some phantom and I was able to capture several shots without the animal's trainer in the frame. Later I converted the color photo into black and white using Nik Silver Efex Pro 2, making it even more mysterious and dreamlike than it originally was.



© Dan Havlik

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**DEADLINE:** MARCH 15, 2015

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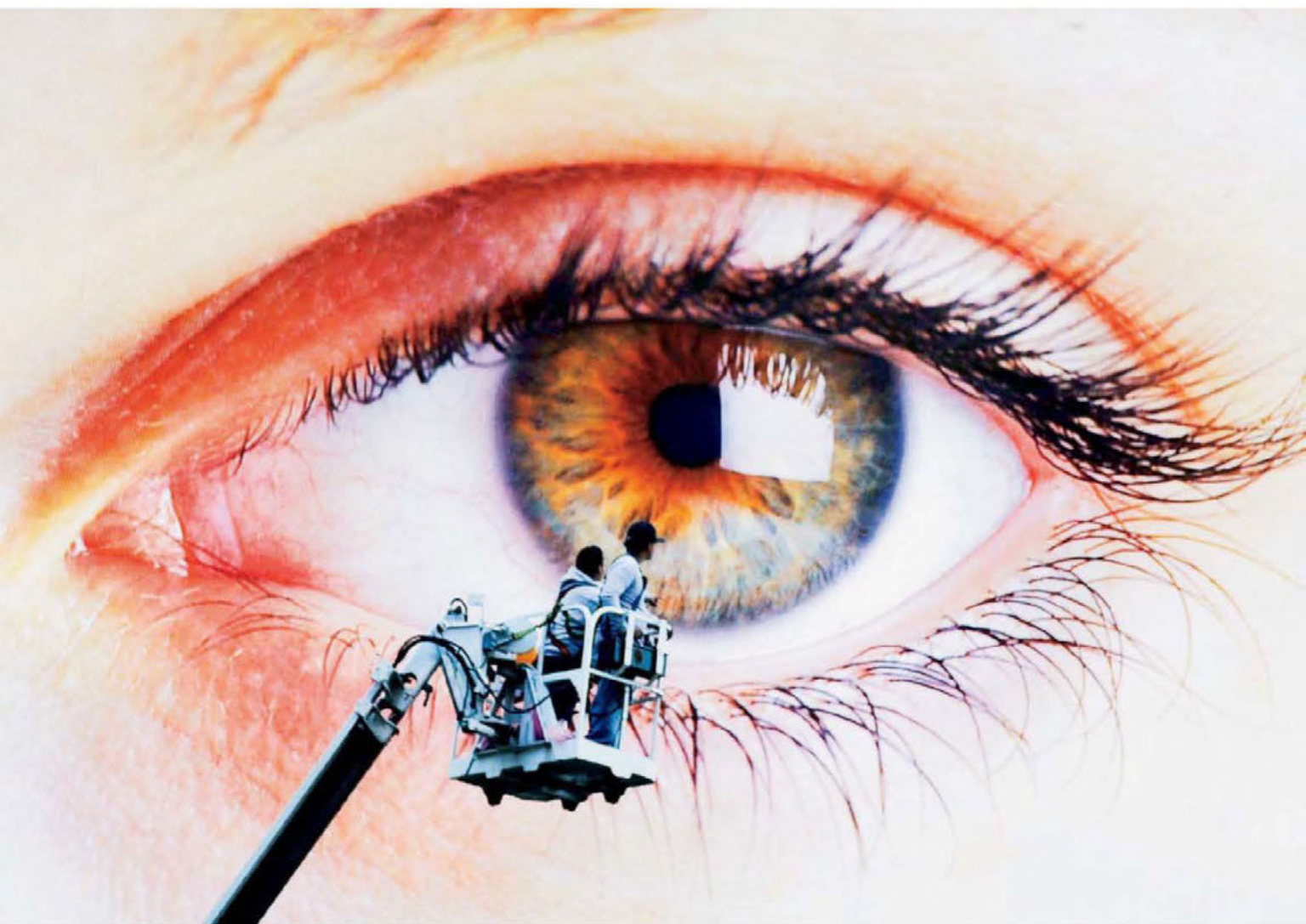
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© David Handschuh

# Eye Spy

## PHOTOGRAPHERS NEED TO LOOK HERE, THERE, AND EVERYWHERE TO GET A WINNING SHOT

BY BARRY TANENBAUM

**I**F THERE'S ONE thing to be learned from a 27-year career shooting for the *New York Daily News*, covering everything from breaking news to sports, food to fashion, it's to keep your eyes open. David Handschuh calls this photo "the ultimate walking around with your eyes open picture."

Handschuh was making his way through Times Square in New York City one morning, and, he says, "like most photographers, I'm always looking up, down, and all around, constantly

watching for, and sometimes finding, moments to shoot." What he spotted that morning was a bucket truck with two maintenance guys a hundred feet in the air. "And then this giant eye pops on the Jumbotron display, looking right at them, and I think, Well, I'm going to be late for my next shoot."

Late because ads on the Jumbotron cycle every couple of minutes, and it took a few turns through the rotation until he had a vantage point from which the guys lined up perfectly, with the eye watching them just so.

What we like about the photo is not just its immediate graphic impact, but the fact that even in the maelstrom of mid-morning Times Square, a photographer can find a way to make a cool picture.

And we like starting off the year with a photograph that advises us to keep our eyes open. ■

*David Handschuh's photographs are featured at his websites, [www.DavidHandschuh.com](http://www.DavidHandschuh.com) and [www.FlyingManatee.com/photogalleries](http://www.FlyingManatee.com/photogalleries).*

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“For last year’s words belong to last year’s language.  
And next year’s words await another voice.”—T.S. ELIOT

# New Year, New Web Visions

## REVAMP YOUR SITE AND USE THESE ONLINE PORTFOLIOS AS THE INSPIRATION

BY JOE FARACE

**I’M VERY EXCITED** to kick off the new year with websites from four photographers whose photographs could not be more different from one another, yet each shows the power of photography as the universal language. Anyone who is interested in pursuing fine art

photography as either a career or avocation will find that these websites represent a virtual master class and I hope that the photographs will inspire you, as they do me, to make 2015 a year in which we all focus our energies in creating more and better images.

### www.jessicajenneyphotography.com

The Pre-Raphaelite Brotherhood (1848) wanted to reform art by replacing what it saw as a mechanistic approach with a return to the detail, intense colors, and complex compositions of *Quattrocento* (late Middle Ages) Italian art. What does this have to do with Jessica Jenney? I don’t know a better way to describe Jenney’s painfully beautiful photographs that are collected into an understated site hosted on the SmugMug (www.smugmug.com) platform. She’s arranged her main group of images in three collections entitled *Landscapes*, *Flowers*, and *Whimsical*. Inside each are sub-galleries, including seven in *Landscapes*, based mostly on themes with one related to location. *Intimate Landscapes* contains the essence of Jenney’s oeuvre, with impeccable compositions wrapped in a Pre-Raphaelite sensibility she says is achieved with “various treatments.” I don’t care about the technical details involved because it all starts with a unique vision that she brings to these photographs and all you have to do is peek inside these collections to know why. In *Iconic New York* you’ll find romanticized city images that Photo-Secessionists might find hanging in Stieglitz’s 291 gallery while her flower photography combines images with written text to create a serenity you won’t find in typical nature photography.



© Jessica Jenney

Jenney’s whimsical images won’t make you smile but instead make you think. Here she blurs the line between illustration and photography, showing a virtuosity of craft that, if you’ve enjoyed the ride so far, you will find fascinating. And to me that best describes what Jessica Jenney has created—fascinating.

### fmartinmorante.com

Flavio Martin Morante’s cleanly designed site serves as a perfect showcase for his simply complex images. His portfolio is extensive, featuring 12 collections covering geographic areas as diverse as Vietnam and Alabama. In *Liquid Dreams*, an homage to artist Storm Thorgerson, he takes you on a journey to the surreal with images, such as “Horizons,” that Morante says



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© F. Martin Morante

required no Photoshop. You’ll see the same kinds of colorfully bright and sometimes fanciful images in the *Greetings from Alabama* collection where the disciplines of editorial, travel, and fine art seamlessly merge in an unstudied formality showing a side of America only someone not born here could find. In *Give Me Light* he displays his 4x5 black-and-white pinhole work focusing on Wisconsin landscapes that retains that same unique compositional perspective while adding the nuance only monochrome photography can produce. In *The Kindness of Strangers* Morante interjects people, who have been noticeably absent in other collections, showing photographs of people in Uruguay, Nicaragua, France, and Vietnam made during his “walks around the world.” Interestingly, you don’t always see their faces, yet these photographs are a complex blend of environmental portraiture and photojournalism. Before leaving, peek at *MARINAS: Short Tales by the Harbor*, under Book, which contains work made around Port Washington’s harbor and marina. Flavio Martin Morante’s spare but lively images open a window to what is at once familiar but expands to help you see the wonder on the world around you.

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## wanderlustimages.com

Howie Garber is an emergency physician working at small and large hospitals all over the Western US and Alaska but living in Utah. So it's no wonder he was seduced to photograph the natural splendor that abounds in the state. His two online galleries—Fine Art and Stock—contain six collections of virtuoso landscape photography. I was immediately attracted by the *Black and White* collection in Fine Art, which is filled with images that contain echoes of Ansel Adams's work but are uniquely Garber's own. The word “breathtaking” does not seem sufficient to describe these striking landscape photographs. Next, I bounced on over to *Panoramic Images*, which Garber shoots with panoramic film cameras. Websites seldom do justice to this format, which should be viewed

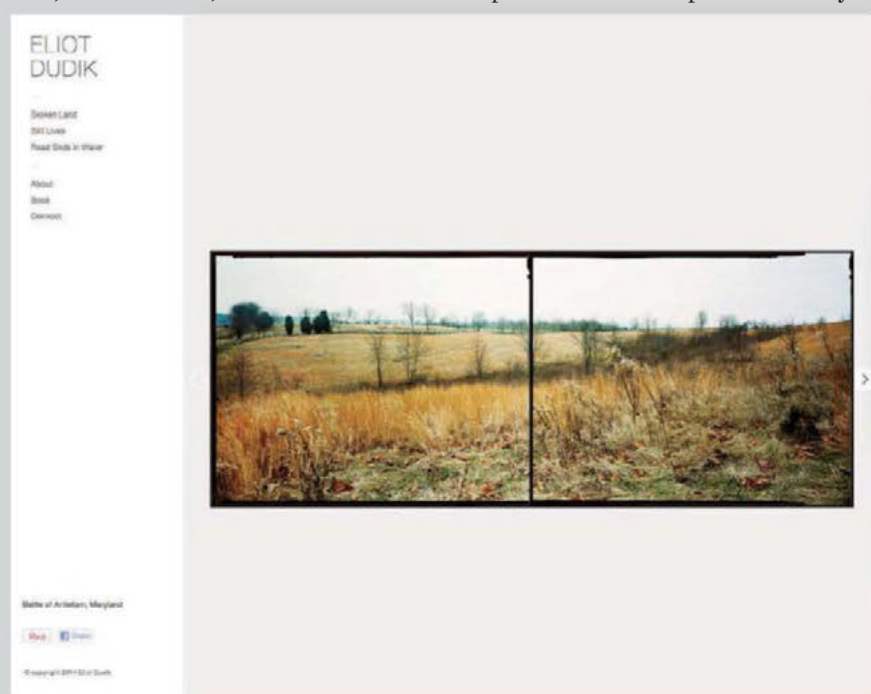
large and the site does its best to let you see these impressive images. (*Tip:* Hit Command + or Control +, to enlarge photographs slightly within the browser.) I've seen many wildlife photographs but was not prepared with what Garber has captured with the image of polar bears around a gray whale carcass, surrounded by glaucous gulls, that looks like an image straight out of *Genesis*. In his *Wildlife* photographs, Garber often features the complexity of nature with sometimes Escher-like images (“Monarch Butterflies,” *Danaus plexippus*, on Branch”) that make you stop and gasp. All of these photographs are available for sale at what appears to be most affordable prices given Howie Garber's prodigious talent and obvious energy.



© Howie Garber Images

## eliotdudik.com

Eliot Dudik's site contains photo essays. Two relate to the American Civil War and include stunning portraits of soldier re-enactors in one with battlefield panoramas contained in the “Broken Land” essay. The final essay, “Road Ends at Water,” looks at US Route 17 that bisects South Carolina's low country and is fast disappearing under bulldozers. Dudik's images were shot on large format film because he's “not encountered anything that can retain the kind of detail possible with a large sheet of film, a view camera, and a drum scanner.” The panoramic landscapes are actually made from two sheets of 8x10 film, exposed



© Eliot Dudik

simultaneously in a 100-year-old 8x20 Korona field camera. By contrast, his re-enactor portraits were made using a 4x5 view camera. What all of this craftsmanship brings to each essay is different in each case. “Broken Land” benefits from his diptych approach and the registration between the two images is remarkable yet becomes transparent after the first image as you focus on the beautifully constructed content. The “Still Lives” re-enactor portraits are a revelation and seem to have been made during Mathew Brady's time (albeit in color), rendering not just the crisp detail of their faces but, if I may add, the souls of the subjects. There is something powerful and affecting about these portraits, especially of the younger soldiers, that can't but help pull an emotional response from the reader. Eliot Dudik's camera is a time machine bringing you face to face with the past and for that we can all be grateful. ■

Joe Farace invites Shutterbug readers to visit his personal websites, including [www.JoeFarace.com](http://www.JoeFarace.com) and [www.JoeFaraceShootsCars.com](http://www.JoeFaraceShootsCars.com), which also includes a blog with tips on photographing automobiles and motorsports.

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# Covering All the Angles

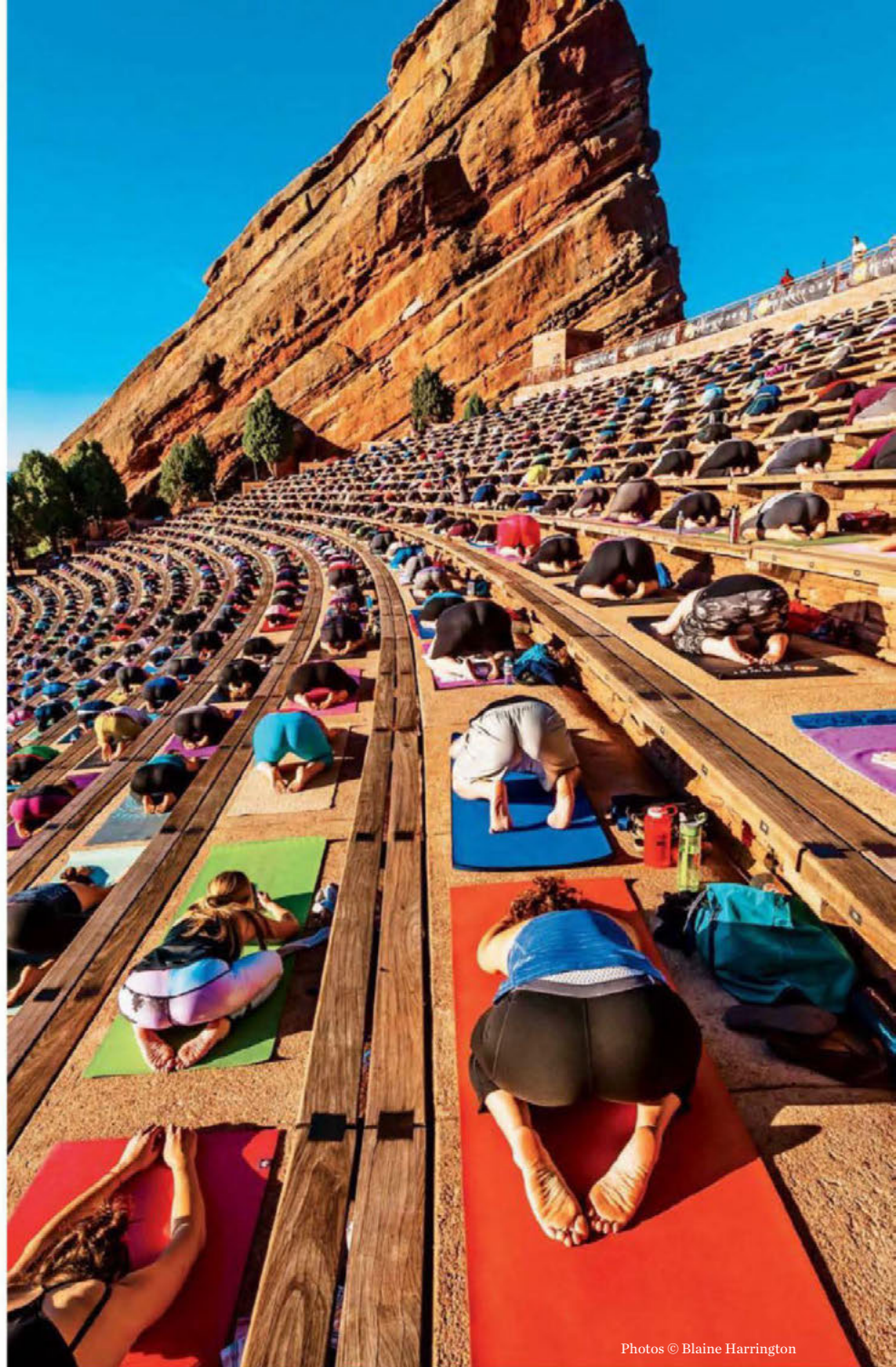
WHEN THE PHOTO SETTING AND SUBJECTS DON'T VARY, STAY ALERT...AND KEEP MOVING

BY BLAINE HARRINGTON

**A** RECENT SHOOT OFFERED a spectacular setting, cooperative subjects, wonderful lighting, great colors, a number of advantageous positions from which to shoot—and a challenge for a travel photographer used to roaming cities and countryside in search of images.

The challenge? There was essentially one location, and it was filled with 2000 people all doing the same things over and over again. What I had to do was find variety and create diverse photographs. The event was called Yoga on the Rocks, and it was held on four consecutive Saturdays in midsummer last year at the Red Rocks Amphitheatre, about 15 miles west of Denver. Knowing that position was going to be the prime key to success—and the ability to move around a close second—I showed up on one of those Saturdays about 45 minutes before the one-hour program's 7:00 a.m. start and staked out a spot facing the main stage. As the place filled up I felt a rush of excitement: so much energy, so much color, and the light was great. The elements were there for me; all I needed to do was to capture them without repeating myself.

My wife, Maureen, is a member of CorePower Yoga, the main sponsor of the event, and I do some yoga myself, so I had a big advantage: I'd know the moves and positions as they were called



Photos © Blaine Harrington

Part of the job is to quickly establish where we are, and to do that I often use the wide-angle or the fisheye lens; here it was the 14-24mm. Even if you don't recognize this as Red Rocks, you know it's out West and it's a very special location. I like the sense of movement in this view.

out to the crowd by the instructors. And I knew the participants would be holding the poses for a relatively long time, and repeating them, so I'd get more than one chance for a photograph of every position.

I stayed on the move the whole time, looking for different angles and perspectives, searching for patterns and compositions, and changing lenses frequently to vary the views. I started

off on the left side and worked my way down toward the stage, but not too close because the sun was so low behind the stage that shade covered a number of front rows. Then I walked back up and around to the right.

There was so much going on, but it was all slow, smooth, precise, and predictable motion. On the other side of that coin, there were so many people taking part that it was easy to lose





## Meet Vanguard Professional Lizzy Gadd.

She photographs people in the midst of Mother Nature, where serene portraiture mingles with vast landscape. Lizzy relies on the UP-Rise II backpack for its protection and comfort and on the Alta Pro tripod for its stability and flexibility. Ask Lizzy and she will tell you: the UP-Rise II and Alta Pro are the perfect companions for her every photo expedition.



© Whitney Justesen



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## CREATIVITY

### ON THE ROAD

► The overall goal was different angles and different views with lots of color, symmetry, and use of the great light. I took this image with the 24-70mm. This shoot was not like traveling and seeing things that are unique all day long and getting vastly different vantage points. It was a nice challenge to creativity.

concentration and get lost in all the choices I could make about where to stand, who to include in the frame, and what lens to use to make the photo work.

I carried two Nikon bodies—the D700 and D610—and four Nikkor lenses—a 16mm fisheye and 14-24mm, 24-70mm, and 70-300mm zooms. I wore a LowePro S&F Deluxe Technical Belt because its big lens pouches allowed me to keep all the lenses in front of me to make quick changes.

As I moved around, I sized up each vantage point and each perspective as well as how the changing light was working in the scene. I was aware of the colors of the participants' outfits and how good the participants looked as they went through the poses. I was also aware of just how much the incredible setting was adding to the frames. I mixed overall views, medium shots and close-ups, each photo accomplishing a purpose and satisfying an aspect of the story. Before I knew it, the hour had flown by.

Yoga on the Rocks was not only a great opportunity for pictures, it was a



▲ Here I got closer and shot at f/9 with the 70-300mm for a "sea of people" effect. The orange sunglasses, which were given to the participants, added a cool factor.

◀ The 16mm fisheye takes the stage and grabs attention. I like how the guy looks cool doing the pose while some of the others in the image aren't quite making it. He holds the picture together compositionally and by his action.

great experience. It was very special to be among so many people dedicated to this discipline and to be, in my own way, a part of it.

Though the shoot wasn't an assignment, I did have the thought of selling some photos later on. I posted images on Facebook, on my website, and to the Facebook page for the event. I sent a link to my site to CorePower's Facebook page also. Dynamic setting, great color, unusual event—I was sure someone would go for the photos. A



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## CREATIVITY

### ON THE ROAD

► Time to vary things with a close-up with the 70-300mm. The color of her outfit, her concentration, and the appearance of those sunglasses make this one work for me.



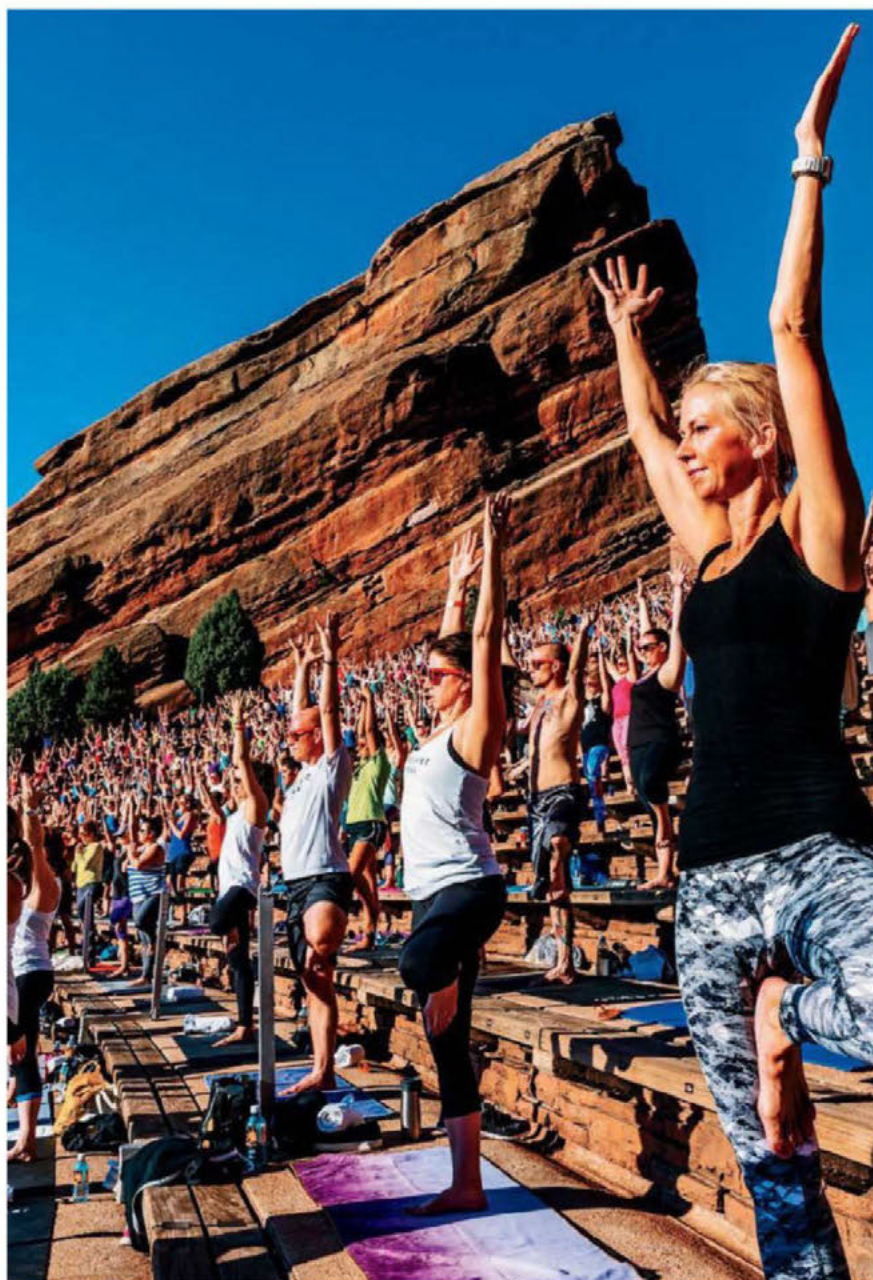
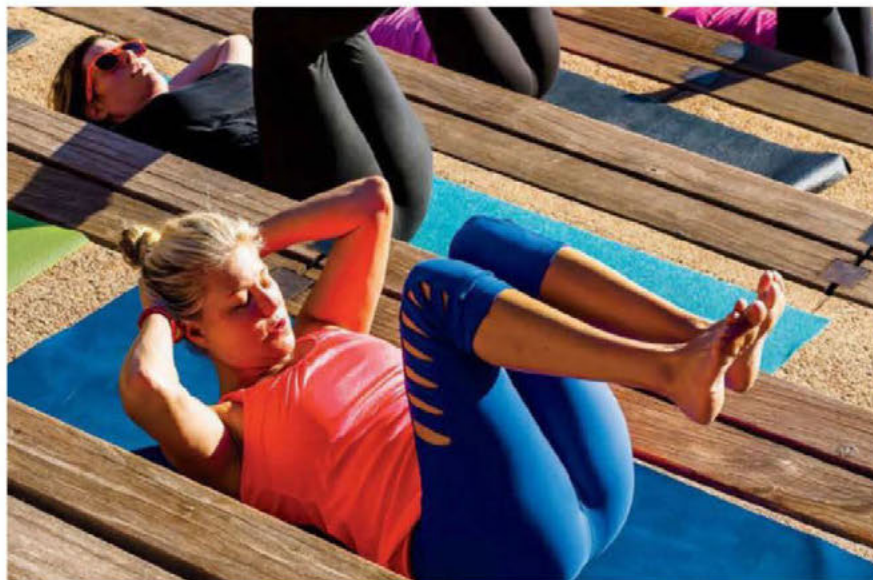
▲ With the fisheye on the camera I moved left of my starting position. Great rhythm here, and f/13 gave me an unplanned, unexpected starburst.

► No flow of movement in this picture, which has the feeling of just what it is: a stop moment near the end of the hour that echoes the earlier upraised arms image. I used the 24-70mm lens here, and was looking, as always, for people who looked good while doing the poses correctly.

couple of days later I got a call from a public relations person from the city of Denver. Although they'd hired someone to shoot the event, they liked my photos and bought the rights to 11 images.

I'm thinking I did a pretty good job of meeting the challenge of a shoot that might have turned out to be too much of a good thing. ■

*A selection of Blaine Harrington's images can be viewed at his website, [www.blaineharrington.com](http://www.blaineharrington.com).*







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The Canon PowerShot G1 X Mark II is a compact camera with a large image sensor (1.5/1 inch) and a fast, built-in 5x zoom lens (24-120mm). The camera offers image resolution of 13 megapixels and allows manual set up of all parameters. It is also able to record high-resolution video.

RGB dot swivel monitor that can flip up- and downward and offers a very bright and brilliant image. The camera has a WLAN module and remote control and image data transfer apps are available for Android and iOS systems. Using the Wi-Fi connection to a smartphone, the G1 X II is able to receive GPS information that can be embedded into the image EXIF data. The camera supports NFC technology, so establishing the camera to smartphone connection is very easy.

### COMMENTS ON IMAGE QUALITY

**COLOR:** The Canon G1 X II reproduced the color test chart with extremely high saturation. The mean saturation is more than 119 percent, which is very high even for a compact camera. The colors, however, appear natural despite the heavy saturation. The automatic white balance system worked very well and all the gray patterns of the test chart are exactly located in the center of the result chart. The neutral grays are also noticeable in the standard test box shot, while the portrait shot was quite warm with some pink touches in all colors.

**SHARPNESS:** The camera showed a good performance in the resolution test and reproduced the test chart with 2713 of 3120 lines per picture height. The camera did show an intense sharpness

# Canon PowerShot G1 X Mark II Review

[ LAB TEST RESULTS & COMMENTS: STILL & VIDEO ]

**F**OR A COMPACT camera, the Canon PowerShot G1 X Mark II has a large image sensor; in fact, it is slightly larger than the sensor found in Micro Four Thirds cameras. The G1 X II offers a moderate resolution of 13 megapixels, with maximum resolution in images with an aspect ratio of 4:3. By default, however, the camera is set to an aspect ratio of 3:2 that delivers slightly less image resolution.

The camera shares the bulky design of all previous Canon G cameras. Nevertheless, it offers intuitive handling, including two lens rings that allow the user to set up manual focus or to change the aperture setting in A and M mode. Focal length is controlled with a rocker switch in front of the shutter release button. All other image parameters can be changed with the four-way control field on the back and the knurled wheel that encircles the control field. A large mode dial on the top allows access to all standard exposure modes. The camera also offers additional scene modes, special effect filters, and two customer-defined image modes, which are also activated by the mode dial. The "S" button on

the back and below the video shutter release button can be programmed for additional functions.

The camera has a 3-inch, 1.04 million

The camera has function buttons and a four-way control field on the back for menu navigation and parameter setup. The high-resolution LCD has 1,040,000 RGB dots and can be flipped up- and downward.





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### IMAGE TECH



The camera has a large mode dial on the top to change exposure modes. The camera offers standard modes, scene modes, and two customer-defined modes.



The camera has no built-in viewfinder (only the 3-inch LCD on the back), but Canon does offer an optional EVF with very high resolution (2.36 million RGB dots) that can be mounted on the accessory shoe, which can also be used for external flash systems. The camera also offers a built-in pop-up flash.

filtering in all pictures, also noticeable in our test that shows an exaggerated graph for the black and white contrast lines and an overshoot effect of 23.2 percent. At times, the very intense sharpness filtering and “de-bayering” algorithms created a slightly artificial and unusual look in fine structures like the hair in the model shot. This seems to be a result of an automatic portrait optimization, even though the model shot was taken in standard P mode and not a special portrait scene mode. In contrast to what we noticed in our portrait shot, the structures in our standard test box image are reproduced quite well.

**NOISE:** The camera showed a very good performance in our noise and dynamic range tests. Compared to other digital compact cameras, the luminance noise level is a little higher because Canon does not use a very intense anti-noise filtering to maintain a high level of image detail. Luminance noise that resembles traditional film grain is visible in images taken at ISO 400, but this effect is very discreet. Color noise gets visible in images taken at ISO 6400 and higher, a very good result. Color clouds in areas like the gray pattern of the test chart are only noticeable when images are shot at ISO 12,800, but even then it's very discreet.

The camera tests with a dynamic range of 10.8 f/stops and keeps this high level in images taken at ISO 200 to ISO 400. At higher ISO settings the dynamic range drops drastically.

### COMMENTS ON VIDEO FUNCTIONS

The camera offers Full HD videos with a resolution of 1920x1080 pixels. The camera is able to shoot in progressive



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## IMAGE TECH



For selfies the swivel LCD can be flipped upward and to the front. The interfaces (USB/TV, HDMI, wire remote control) of the camera are located on the right-hand side of the body and covered by rubber caps.



The Canon G1 X II showed a very neutral reproduction of the standard test box. The colors appear natural even though they are very saturated. Reproduction of fine details is good, although the differentiation of the red colors in the spool (upper right) could be better.

mode, but allows only standard frame rates like 30 fps or 25 fps. The camera offers additional movie modes at lower resolution (720p). It uses H.264 compression techniques for its video files, which are saved as MP4 files.

Video can be activated at any time: the photographer doesn't have to choose video recording via the mode dial. By pressing the video button the camera will switch into P mode, meaning the photographer can't use manual exposure modes for movies or even manual ISO speed settings. Because of this we can't deliver video results for the ISO/noise and dynamic range tests. In automatic mode we did find a good noise result, but a poor result for dynamic range (7.53 f/stops).



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LensCoat® RainCoat 2 provides protection for your camera and lens from the elements like rain, snow, salt spray, dirt, sand and dust while allowing you easy access to the camera and lens controls. It has all same great features as the original RainCoat but adds an additional integrated pocket with foldaway arm sleeve on the left side for easier access to zoom and focus. The RainCoat 2 comes in two sizes **Pro** (for DSLRs with lenses from 300mm f2.8 - 800mm) and **Standard** (for DSLRs with small lenses up to 400mm f5.6). The RainCoat 2 is constructed from a lightweight waterproof, breathable poly tricot material. The seams are tape sealed for maximum protection.

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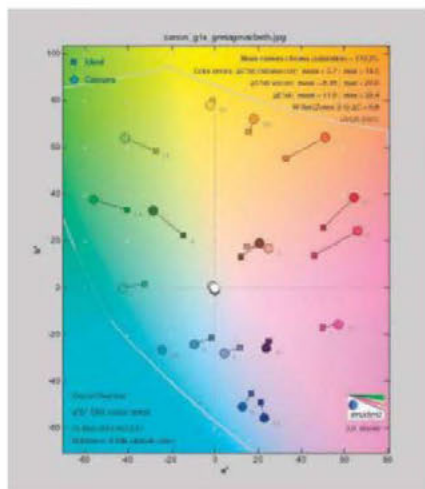


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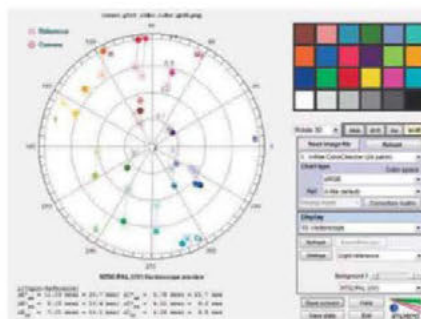
The Canon G1 X II reproduced the color test chart with extremely high saturation. The mean saturation is more than 119 percent, which is very high even for a compact camera.

The video color reproduction is very good. The camera reproduced the color chart with perfect white balance (note the gray pattern results, which are located in the center of the result chart) and the same neutral colors as in photo mode. And just like in photo mode, the colors are very saturated.

## COMMENTS ON VIDEO QUALITY

The G1 X II showed a very low result in our resolution test. The camera reproduced the test chart with 506 lines per picture height when taking Full HD videos (1080 lines per picture height). The movie of the test chart had a very soft look, while our sample real-life clip showed extreme over-sharpening effects with extreme aliasing effects on diagonal contrast lines. These lines show very hard jaggies.

The video color reproduction is very good. The camera reproduced the color chart with perfect white balance (note



The very high color saturation is noticeable in the red tones of the model's T-shirt. The skin tones are fine with a slightly exaggerated magenta rate.

the gray pattern results, which are located in the center of the result chart) and the same neutral colors as in photo mode. And just like in photo mode, the colors are very saturated.

The Canon PowerShot G1 X Mark II has a list price of \$799.99. For more information, visit [www.usa.canon.com](http://www.usa.canon.com). ■

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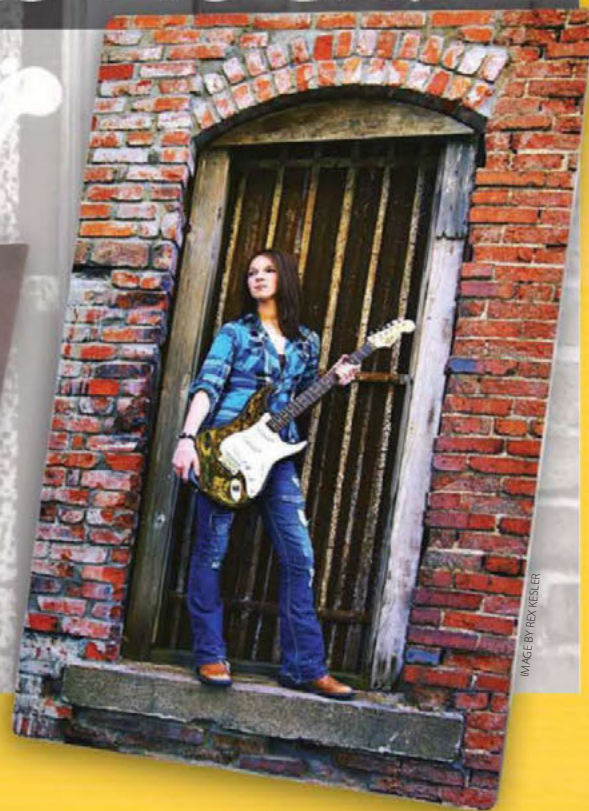
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The Sony A77 II is a 24-megapixel camera with an APS-C image sensor. It uses Sony's unique SLT technology, which combines an interchangeable lens system and an electronic viewfinder with a fixed and semi-translucent mirror with a phase-detection AF sensor.



The LCD screen of the A77 II offers nearly 1.3 million RGB dots. The live preview and the menu of the camera are reproduced with a very crisp and clear look. The small joystick, which replaces the standard four-way control field, allows for fast set up of parameters and fast menu navigation.

# Sony Alpha 77 II Review

[ LAB TEST RESULTS & COMMENTS: STILL & VIDEO ]

**T**HE SONY A77 II is the replacement for the A77, which made its debut in 2011. The A77 II uses a new image sensor with 6000x4000 pixels (same resolution as the A77) that, while sharing the same resolution as its forerunner, does have a new micro lens system that captures more light on each single pixel/diode of the sensor. This helps raise the maximum ISO to 25,600 and to 51,200 as a "push." In contrast to some other new advanced cameras, the APS-C sensor in the Sony A77 II uses a low-pass filter to prevent moiré effects.

The camera's SLT system uses an electronic viewfinder with a fixed and semi-translucent mirror for the additional AF sensor. This arrangement combines the advantages of a CSC (Compact System Camera) with the fast AF response of an SLR camera. Indeed, the new AF system of the A77 II is very fast and flexible with 79 AF sensors (15 of them being cross-type sensors). Compared to other mid-range SLR systems, the AF area is larger and covers a wider area of the image. There

are numerous AF modes like "wide zone," "flexible spot," and an "expanded flexible spot," and more that allow the user to customize their focusing setup. Of course, the camera offers manual focusing with a focus magnifier function and focus peaking.

The Sony A77 II offers numerous exposure and scene modes. Main modes are chosen with the mode dial on the top, which also allows access to a high-speed burst mode for shooting up to 12 frames per second. The frame buffer in the new camera has been expanded and allows the photographer to shoot up to 60 frames in high-speed mode. (Note: In the 12 frames per second mode, exposure settings revert to automatic mode. In additional burst modes, which support P, S, A, and M exposure modes, the Sony A77 II allows the user to shoot up to 8 frames per second. Even so, this is a very high rate considering that the camera delivers 24 megapixel images.) The camera also offers scene modes and special effects filters, including a panoramic option.

The camera offers handling similar



The camera has numerous interfaces on the left-hand side, including a USB 2.0 port for data transfer, HDMI for image and video presentation on high-resolution TVs, and a microphone jack for higher sound recording quality.



The A77 II has an additional status LCD on the top, just like a professional SLR. The mode dial allows access to standard exposure modes and scene modes and offers a special high-speed mode for shooting up to 12 frames per second.



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Video Sliders/Rigs



Flash Brackets





The monitor on the back has an unusual pivot joint that allows for versatile adjustments and is especially useful when recording videos.

to a professional SLR. It has many function elements and two setup dials near the shutter release button on the back to change aperture and shutter speed simultaneously. A small joystick on the back allows the user to change image parameters via the LCD menu very quickly and efficiently.

The camera's high-resolution viewfinder has 2.36 million RGB dots and displays a sharp and crystal-clear image. It also shows a lot of additional

information and therefore can look a little "overloaded," especially when the very fast-changing AF sensor indicators show the currently active sensors in continuous AF focus mode.

The camera has a swivel LCD in addition to the EVF. The swivel LCD has a somewhat unusual pivot joint, allowing the user to flip the screen up and downward, to the side, and even to the front, although we suspect that those who buy a sophisticated camera such as this may rarely use it for selfies. The LCD screen is large (three inches) and has a high resolution of 1.3 million RGB dots.

The camera offers a multitude of individual settings for handling customization. The photographer can change the function of the setup dials, define the color and intensity of focus peaking, and much more.

#### COMMENTS ON IMAGE QUALITY

**COLOR:** The Sony A77 II showed very good color reproduction of the test chart. The automatic white balance

system caused a slightly cool look, thus the gray patterns of the test chart show a tendency into the blue color area. This is also noticeable in the portrait shot, which has a bluish background. The mean saturation is very good (slightly oversaturated with 105.7 percent) but red nuances are boosted and have a high yellow rate. This is also noticeable in the portrait shot. Skin tone reproduction is excellent.

**SHARPNESS:** The Sony A77 II showed only good performance in the resolution test. It reproduced the ISO 12.233 chart with 3129 of 4000 lines, which is a little lower than the results achieved by cameras that do not use a low-pass filter. The Sony's images have a naturally sharp look without over-sharpening effects created by the image processor. We did note that the structure of the hair in the portrait shot showed a minor tendency toward aliasing or moiré effects, but the standard test box shows a softer look.

**NOISE:** Even though the pixel density on the APS-C-sized sensor and 24-megapixel resolution of the A77

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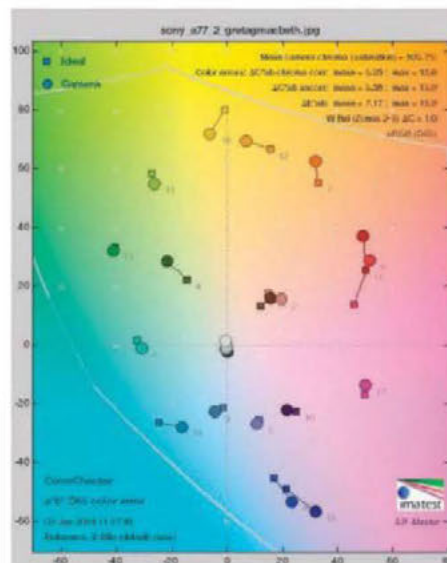
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The standard test box image is not especially crisp but nevertheless has a very natural look. The image is a little underexposed (P mode, ISO 100).

The Sony A77 II showed very good color reproduction of the test chart. The automatic white balance system caused a slightly cool look, thus the gray patterns of the test chart show a tendency into the blue color area.



II is very high, it showed a very good performance in our noise tests. The luminance noise stays below 1.0 percent even in images taken at ISO 12,800; only at ISO 25,600 does it cross the 1.0 line. Color noise becomes visible in images taken at ISO 1600. In images taken at ISO 3200 we noticed anti-noise filtering effects and color clouds in homogeneous areas of the gray pattern of our test chart. However, the effects are minimal and acceptable in images taken at ISO 3200 to ISO 6400. At ISO 12,800 and ISO 25,600 they become clearly visible and at ISO 25,600 they become quite annoying. The dynamic range results achieved a maximum of 11.8 f/stops, which is very high for a mid-range SLR.

## COMMENTS ON VIDEO FUNCTIONS

The camera allows the user to shoot video in Full HD resolution of 1920x1080 pixels. It offers AVCHD and MP4 files as video formats and allows for high frame rates up to 60 frames per second. It offers PAL and NTSC standard modes (25 or 29.97 frames per second) and a 24 fps mode in the cinema-style recording option.

The AVCHD 2.0 format can be used with high data rates. The user can change the bit rate in the menu and choose a maximum of 28 Mbit/s for videos. The MP4 file format is used for a more compact video size (1440x1080 scaled to 16:9 aspect ratio). The videos are saved as MTS (AVCHD) or MP4 files. This allows the user to work with the most recent editing software.

The camera offers a second shutter

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#### THE 22H0BD-W 22-INCH WHITE BEAUTY DISH \$79<sup>95</sup>

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## IMAGE TECH



The skin tones are reproduced very naturally. The red color of the T-shirt is boosted and has a very high yellow rate.

release button to start video recording at any time. The user can also use a special movie mode, which is activated by the mode dial on the top. The Sony allows the user to work with fully automatic exposure and focus settings as well as exposure modes (A, S, and M). The ISO can also be set by the photographer. The speed setting in movie mode is limited to a top sensitivity of ISO 3200.

The camera allows for use of an external microphone for better sound recording. It has a manual sound level control and offers an additional audio filter mode for higher sound quality when recording, for example, in windy conditions.

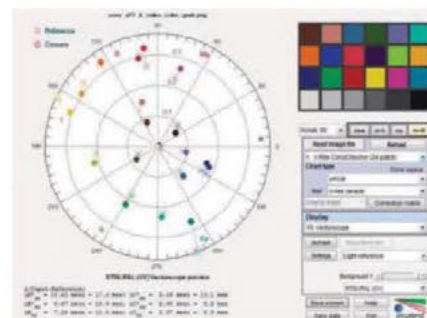
## COMMENTS ON VIDEO QUALITY

The Sony A77 II showed excellent results in our video resolution test. In 1080p mode it reproduced the ISO 12.233 chart with 916 lines per picture height, which is an excellent result. Even though the camera showed extremely crisp video images we didn't notice aliasing or moiré effects.

The color reproduction is a bit different than the color reproduction in photo mode. The videos have medium saturation (noticeable in the reds) and the white balance system showed less of a tendency toward bluish colors. The noise results are very good: The luminance noise stays on a low level and color noise only gets visible in videos taken at ISO 1600 and ISO 3200.

The dynamic range in video isn't as good as in photo mode. The camera had a maximum of 11.1 f/stops in lower ISO speeds, but at higher ISO speed settings the dynamic range is about 8-9 f/stops.

The Sony Alpha 77 II (body only) has a list price of \$1049.99. For more information, visit [www.sony.com](http://www.sony.com). ■



The video color reproduction is a bit different than the color reproduction in photo mode. The videos have medium saturation (noticeable in the reds) and the white balance system showed less of a tendency toward bluish colors.

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- Somewhat bulky design
- Electronic viewfinders (EVF) are not for everyone

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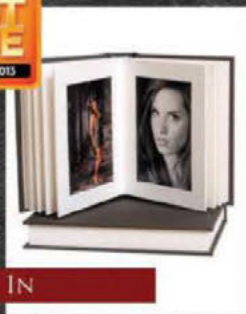
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# MAJOR TIPA READER SURVEY 2015



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<http://presseforschung.de/shutterbug>

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**2014 BEST ENTRY-LEVEL DSLR:** Nikon D3300 body

**2014 BEST ADVANCED DSLR:** Canon EOS 70D body

**2014 BEST PROFESSIONAL DSLR:** Nikon D4S body

**2014 BEST MIRRORLESS CSC:** Olympus OM-D E-M10 body

**2014 BEST EXPERT MIRRORLESS CSC:** Fujifilm X-T1 body

**2014 BEST PROFESSIONAL MIRRORLESS CSC:** Sony Alpha 7R body



## 1. I TAKE PHOTOGRAPHS

- ☐ Daily
- ☐ Several times a week
- ☐ Once a week
- ☐ Several times a month
- ☐ Not very often
- ☐ Rather seasonally

## 2. AS A PHOTOGRAPHER, I CHARACTERIZE MYSELF AS FOLLOWS: (MULTIPLE ANSWERS ALLOWED)

- ☐ I shoot a little bit of everything, without a main focus
- ☐ I take pictures mainly of everyday life (friends, family, etc.)
- ☐ I specialize in a few subjects (such as nature, fashion, sports, etc.)
- ☐ Photography is my favorite activity
- ☐ I am a trained photographer
- ☐ Photography is my main profession
- ☐ I take photos as part of my profession (graphic design, media production, etc.)

## 3. MY PHOTOGRAPHIC EQUIPMENT:

- I regularly use \_\_\_\_\_ different cameras to take pictures.  
(Please insert a number)

- I never go out without my camera

applies fully ☐ ☐ ☐ does not apply ☐

- I keep my photographic equipment up to date and in line with the latest technology

applies fully ☐ ☐ ☐ does not apply ☐

- I spend at least as much money on photographic accessories as on my camera(s)

applies fully ☐ ☐ ☐ does not apply ☐

- I prefer to buy photographic products of a specific brand

applies fully ☐ ☐ ☐ does not apply ☐

- I advise others on the purchase of photographic equipment

applies fully ☐ ☐ ☐ does not apply ☐

## 4. MY PHOTOS ARE CAPTURED

- Using a camera with a Micro Four Thirds-sized sensor

☐ often ☐ occasionally ☐ rarely ☐ never

- Using a camera with an APS-C-sized sensor

☐ often ☐ occasionally ☐ rarely ☐ never

- Using a DSLR with a full-frame-sized sensor

☐ often ☐ occasionally ☐ rarely ☐ never

- Using a Medium Format Digital camera

☐ often ☐ occasionally ☐ rarely ☐ never

## AND

- On film ☐ often ☐ occasionally ☐ rarely ☐ never
- In a Raw file format ☐ often ☐ occasionally ☐ rarely ☐ never
- In the JPEG file format ☐ often ☐ occasionally ☐ rarely ☐ never

## 5. PER YEAR, I CREATE APPROXIMATELY \_\_\_\_\_ PRINTED PHOTO BOOKS.

## 6. I USE THE FOLLOWING CAMERA FUNCTIONS

- Manual mode ☐ often ☐ occasionally ☐ rarely ☐ never
- Shutter priority mode ☐ often ☐ occasionally ☐ rarely ☐ never
- Aperture priority mode ☐ often ☐ occasionally ☐ rarely ☐ never
- Program mode ☐ often ☐ occasionally ☐ rarely ☐ never
- Video mode ☐ often ☐ occasionally ☐ rarely ☐ never
- Wi-Fi/WLAN ☐ often ☐ occasionally ☐ rarely ☐ never

## 7. I REGULARLY RESEARCH PHOTO PRODUCTS

(multiple answers allowed)

1. ☐ In photography magazines
2. ☐ In computer magazines
3. ☐ In multi-topic tech magazines (digital photo/video/audio)
4. ☐ From my photo specialty retailer
5. ☐ At trade shows
6. ☐ From manufacturer brochures
7. ☐ On the Internet

The source of information I most trust is No. \_\_\_\_

## 8. SHUTTERBUG APPEARS 12 TIMES A YEAR

- ☐ I read \_\_\_\_\_ issues per year.
- ☐ This is the first time I have read this magazine.

## 9. HOW I OBTAIN SHUTTERBUG

- ☐ I am a subscriber.
- ☐ I buy the magazine from a retailer/newsstand.
- ☐ I read it after someone else has finished with it.

## 10. I PICK UP AN ISSUE OF SHUTTERBUG ABOUT \_\_\_\_\_ TIMES TO LEAF THROUGH OR READ IT.

## 11. OF ANY ONE ISSUE OF SHUTTERBUG, I NORMALLY READ

- ☐ All/almost all pages
- ☐ About three quarters
- ☐ About half
- ☐ Only a few pages

## 12. I READ AN ISSUE OF SHUTTERBUG FOR A TOTAL OF ABOUT \_\_\_\_\_ MINUTES.

## 13. APART FROM MYSELF, \_\_\_\_\_ PEOPLE READ ANY ONE ISSUE OF SHUTTERBUG.

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Competent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Incompetent
Useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not useful
Clear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Confusing
Unbiased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Biased
Current	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not current
Entertaining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Boring
Likable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unlikable
Varied	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unvaried

#### 15. IF SHUTTERBUG WERE NO LONGER PUBLISHED I WOULD MISS IT.

☐ very strongly   ☐ strongly   ☐ less strongly   ☐ not at all

#### 16. TOPICS YOU'D LIKE TO READ IN SHUTTERBUG:

- Detailed camera tests  
☐ very important   ☐ important   ☐ less important   ☐ unimportant
- Comparative camera tests  
☐ very important   ☐ important   ☐ less important   ☐ unimportant
- Tips for photo accessories  
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- Tests of photo accessories  
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- Market overviews  
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- Techniques of photography: tips and tricks  
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- Photographer profiles  
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- Gallery shows and exhibitions  
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- Photo competitions  
☐ very important   ☐ important   ☐ less important   ☐ unimportant

#### 17. A DIGITAL VERSION OF SHUTTERBUG

- I already use it regularly  
applies fully   ☐   ☐   ☐   does not apply   ☐
- Is generally appealing to me  
applies fully   ☐   ☐   ☐   does not apply   ☐
- I would buy it instead of the printed magazine  
applies fully   ☐   ☐   ☐   does not apply   ☐
- I would additionally subscribe to it, with special features at an extra cost  
applies fully   ☐   ☐   ☐   does not apply   ☐

#### 18. IN THE NEXT 24 MONTHS I INTEND TO BUY

- |  |  |
|--|--|
| <input type="checkbox"/> Digital SLR camera            | <input type="checkbox"/> Photo/graphics software |
| <input type="checkbox"/> Digital Medium Format Camera  | <input type="checkbox"/> Studio Lighting Scanner |
| <input type="checkbox"/> Digital Compact System Camera | <input type="checkbox"/> Photo Printer           |
| <input type="checkbox"/> Digital Compact Camera        | <input type="checkbox"/> Tripod                  |
| <input type="checkbox"/> Colour Management System      | <input type="checkbox"/> Projector               |
| <input type="checkbox"/> Interchangeable Lenses        | <input type="checkbox"/> Accessories             |

#### 19. I READ THE ADVERTISEMENTS AND SUPPLEMENTS IN SHUTTERBUG

☐ Always   ☐ Often   ☐ Rarely   ☐ Never

#### 20. ADVERTISEMENTS IN SHUTTERBUG

- Have informational value to me  
applies fully   ☐   ☐   ☐   does not apply   ☐
- Have previously prompted me to gather further information  
applies fully   ☐   ☐   ☐   does not apply   ☐
- Have previously prompted me to make a purchase  
applies fully   ☐   ☐   ☐   does not apply   ☐

#### 21. I VISIT THE SHUTTERBUG.COM WEBSITE

- ☐ Several times a week
- ☐ Several times a month
- ☐ Once a month
- ☐ Every 2-3 months
- ☐ Less often
- ☐ Never

#### 22. IN THE NEXT TWO TO THREE YEARS, I WILL SPEND TIME ON PHOTOGRAPHY:

- ☐ Rather more time
- ☐ Rather less time
- ☐ As much time as I do today

#### 23. PERSONAL DETAILS

☐ male   ☐ female

I am \_\_\_\_\_ years old.

#### 24. THE NET MONTHLY INCOME OF ALL HOUSEHOLD MEMBERS IS:

- ☐ Less than \$2,600
- ☐ \$2,600 - \$3,299
- ☐ \$3,300 - \$4,099
- ☐ \$4,100 - \$4,799
- ☐ \$4,800 - \$5,599
- ☐ \$5,600 - \$6,399
- ☐ \$6,400 - \$7,200
- ☐ more than \$7,200



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TEST REPORT

# Field Review: Nikon D750 DSLR

WE TAKE NIKON'S NEW FULL-FRAME DSLR FOR A SPIN IN PUERTO RICO AND ARE IMPRESSED WITH THE RESULTS

BY DAN HAVLIK



**T**ECHNICALLY SPEAKING, THE Nikon D750 is the follow-up to the Nikon D700, which was released six years ago. That's a lifetime between digital camera models, and to say that the D750 is not nearly as groundbreaking as its predecessor from way back in 2008 is not a put-down of this new full-framer from Nikon. It just shows how far imaging technology has come and how much the D700 was ahead of its time.

But the Nikon D750 is a fine camera in its own right as I learned while testing this 24.3-megapixel, FX-format DSLR during a recent trip to Puerto Rico. If it doesn't, necessarily, have the "wow" factor of its predecessor, which was one of the first more affordably priced and compact full-frame DSLRs on the market, that's just because the market has expanded.

Nowadays, Nikon's full-frame line

includes four DSLRs in a range of prices to suit different photographers. The Nikon D750 (\$2299) slots between the 24.3MP D610 "entry-level" full-frame camera (\$1999) and the pro-level 36.3MP Nikon D810 (\$3299) and its specifications are about where you'd expect them: nestled closely between those two models. At the same time, the D750 is a clear step down from the big, tough, and extremely fast D4S (\$6499), Nikon's flagship, full-frame, pro DSLR. Or, in other words, the D750 is decidedly a "photo enthusiast" camera, though it has many features borrowed from Nikon's pro models, including some stellar video skills.

Here's what I thought of the Nikon D750 after my time field-testing it in Puerto Rico.

## BUILD

The Nikon D750 sticks to the



"Goldilocks principle" of new products: i.e., not too big and not too small.

While it's a feature-rich camera, the D750's body is relatively portable and lightweight, tipping the scales at approximately 27 ounces, with the battery loaded. Nikon, in its pre-release hype on the D750, made a big deal of emphasizing the DSLR's "monocoque" camera build, which uses carbon fiber for the front body and cover and

Product shots courtesy of Nikon Inc.



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magnesium alloy for the rear cover and top cover. In real-world use, the camera feels sturdy but not hefty, balanced and ergonomic. Surprisingly, it's a bit lighter and narrower than the entry-level, full-frame D610 model, a camera that always felt a bit flimsy to me.

For my trip to Puerto Rico, I wanted to travel light, particularly when it came to camera gear. I used the D750 with the AF-S Nikkor 24-120mm f/4G ED VR kit lens (the D750 kit sells for \$2996) and the new AF-S Nikkor 20mm f/1.8G ED, which is a lens I quickly fell in love with while shooting street photography in Old San Juan. That camera and two-lens setup, along with a 15-inch MacBook Pro and iPad, fit neatly into my Tenba Discovery Photo/Laptop Daypack, with still plenty of room for peripherals, accessories, snacks, maps, and a Stephen King novel I brought for the plane ride.

While certainly not as durable or weather-resistant as the D4S, which is a veritable tank of a camera, the D750 is gasketed and sealed to prevent dust and moisture and the shutter is rated at a respectable 150,000 cycles. As part of my field test, I photographed people riding horses along the beach



I don't have much to say about this spectacular cliff jumping shot other than the D750 absolutely nailed it. While I wouldn't use the 6.5 fps-shooting D750 for serious fast action—its Raw buffer is not big enough—the camera's great for capturing movement shots in short bursts.



The Nikon D750's excellent metering skills produced superior dynamic range, capturing detail in both the highlights of the cloud-dappled sky and the shadows of the interior of the courtyard.

Photos © Dan Havlik



While I'm not keen on sunset photos, this shot of the El Morro fort during "the golden hour" is one of my favorite images of the trip. The D750 did a great job of capturing the fine orange, yellow, green, and blue colors of the sunset, while outlining the silhouettes of people and the contours of the old fort in the foreground.

and got considerably splashed as the horses galloped along the shore. (See corresponding photo.) Salt water can be very damaging to digital cameras but the D750 was unaffected by the saline spray. Overall, the build of the camera feels like a significant step up from the D610, without adding heft or making it less portable. But anyone more comfortable with a serious pro body, like the D4S, might find the D750 lacks muscle.

## FEATURES

As mentioned previously, while the D750 might not have the build of a professional camera, it's loaded with useful, pro-worthy features. I'll get into a discussion of the effectiveness of these features in the Performance section, but here's a rundown of what Nikon's packed into this camera.

Nikon's choice to put a "newly designed" full-frame CMOS chip into

the D750 with the same 24.3 megapixels of resolution as the D610 doesn't take many risks. The sensor is equipped with a low-pass optical filter, unlike the D810, which, in an effort to increase resolution, sharpness, and dynamic range, has no filter.

The D750 offers a significant upgrade over the D610 when it comes to autofocus performance. The D750 shares the same Advanced Multi-Cam 3500-FX II, 51-point AF focus system as the D810. The AF system uses 15 cross-type AF sensors with 11 cross-type sensors that are functional up to f/8.

Where the D750 actually goes beyond the D810 is in its low-light focusing capabilities: it can lock onto subjects in as little as -3 EV illumination, which is a first for Nikon's cameras. Speaking of low light, the D750 features an ISO range of 100-12,800 that's expandable to (Lo-1) 50 to (Hi-2) 51,200. The camera



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also offers Nikon's 3D Color Matrix Metering III system, employing a 91,000-pixel RGB sensor, over version II of the system in the D610, which uses a 2016-pixel sensor.

While some rumor sites had pegged the D750 as an "action camera" in the pre-release buildup, speed is not exactly this model's forte, though it is quick, with the ability to shoot at 6.5 frames per second (fps) shooting speed in either FX (full-frame) or DX (cropped) formats. It's powered by Nikon's EXPEED 4 image processor, which is another upgrade over the D610, and sports a 3.2-inch, tilting, vari-angle LCD screen with 1,229K dots of resolution. (This is Nikon's first full-frame DSLR with a tilting screen.) The Nikon D750 has dual SD Card slots, which is a handy feature for data overflow or for splitting still and video files, or Raws and JPEGs, onto two separate cards while shooting.

In another step up from the D610,



I was impressed by how sharp this image came out, which is a credit to the D750 and the Nikkor 70-200mm f/2.8G ED VR II lens I used here. Even though it's an action shot at ISO 3200, the dancer's face is extremely sharp and I love the blurred musicians in the background, which gives the photo some context.



While shooting street photography of Old San Juan, I fell in love with the AF-S Nikkor 20mm f/1.8G ED lens, which showed great range in helping me capture this "happy accident" photo of a girl running across this courtyard. Color rendition and detail from the D750 was exceptional, rivaling that of the more expensive D810.

the D750 has the same video features as the higher-priced D810, including full 1080p HD (1920x1080 resolution) at 60/30/24p; the Power Aperture feature; headphone and microphone jacks; Zebra stripes to spot overexposed areas; as well as the ability to select frequency ranges for the internal stereo microphone.

## PERFORMANCE

While it certainly doesn't give the 11 fps-shooting D4S a run for its money, the Nikon D750 is a very capable performer suited for a number of different types of photography. During my trip to Puerto Rico, I used it to photograph fast-moving salsa dancers in tricky indoor lighting; colorful street scenes in Old San Juan; golden hour at the El Morro fort along San Juan Bay; free-falling cliff divers along the Atlantic Ocean; dark caves filled with ancient Indian petroglyphs; and the aforementioned horses charging through the surf.

It was quite a workout for the D750, and while it didn't excel at any one particular test, it was a solid all-around full-frame DSLR. (See accompanying photos with details in the captions for all these shoots.) I was particularly impressed with how the D750 handled photographing the dancers along with the backing band of musicians. I borrowed a Nikkor 70-200mm f/2.8G ED VR II lens to use with the D750 for that particular shoot and it was a winning combo. I was primarily shooting at ISO 6400,

and my images looked sharp and crisp with very little image noise despite the fairly substantial 24.3 megapixels of resolution.

The D750's burst speed of 6.5 fps is a slight upgrade over the D610 (6 fps), but the buffer rate for these two cameras is nearly identical and that's not ideal if you shoot in Raw+JPEG mode, as I often do. Using a 32GB SanDisk Extreme (45MB/s) card with the D750, I could sustain my bursts for about two to four seconds of continuous capture before the buffer would have to clear so I could shoot again. This was fine for the dancers since I'd shoot short sequences of one performer and then move on to the next one, but a bit more frustrating when I tried to shoot extended bursts of the horse charging toward me and had to wait every few seconds for the buffer to clear, thus missing some key shots. If you're just shooting JPEGs, however, I had no problems sustaining 20-second (and more) continuous shooting, even at the highest resolution (FINE) setting.

The D750 also felt a step slow, at times, during normal operation of the camera. When trying to quickly play back images after capturing them, for example, I'd periodically get the hourglass symbol as the camera tried to call up the shot. Also, sometimes menu functions would sometimes take an extra split second to register after pressing a button, which can get aggravating when you're in a hurry. I noticed a similar operational sluggishness on several other D750



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models being tested by colleagues. This is strange considering that the D750 is powered by the newer EXPEED 4 processor and should be pretty zippy. I was testing a final production D750 model—not a prototype—so hopefully a firmware upgrade will be forthcoming from Nikon to remedy this.

## IMAGE QUALITY

The D750's image quality was exceptional, across the board. I mentioned earlier in this review about how the D750 produced crisp, low-noise images in shots of dancers I captured at ISO 3200 and 6400. I was even more impressed with the clean results at ISO 12,800 in images captured in extreme low lighting in the La Cueva del Indio (Caves of the Indians) in Arecibo. A photo included in this review, which I captured at ISO 12,800, is sharp enough that you can see the individual grooves in the stone that have been worn away by the elements, with very little to no chroma or luminance noise to distort them.

In better light, the D750 positively shined, producing vibrant but accurate color, natural-looking skin tones, and ample amounts of resolution that would rival some lower-end medium format camera systems. For a DSLR aimed at enthusiasts, that's a pretty remarkable achievement. I think landscape, portrait, and street photographers will find the D750 well suited for their needs. Even though the D750's sensor doesn't seem drastically different from the one in the D610, I thought that consumer full-framer produced excellent image quality so the new model is in good company. And even though the D750 uses an optical low-pass filter, which should, ostensibly, affect resolution, sharpness, and dynamic range, I found the differences between this camera and the higher-end D810 to be barely noticeable. As for video quality, the D750 is the equal of the pro-level D810, and costs \$1000 less to boot.

## CONCLUSION

On paper, the D750 might not seem like the most exciting camera Nikon has ever produced, but this middle-tier, full-frame DSLR is a very solid, all-around performer with some of the best image quality we've ever seen from a camera



With the sunlight in the background and the horse galloping toward me in the surf along the shore, this was a challenging shot. The D750 did an excellent job capturing color and detail (look at the droplets!) in what could have been a flat image. The surprisingly tough camera also survived being doused with salt water.

selling for under \$2500. While the D750 may not be the fastest DSLR we've ever tested—and probably needs a firmware upgrade to fix some of its operational lags—and not really suited for extreme fast action (despite its pre-release hype), it's a great option for landscape, portrait, and street photographers. Boasting image quality that rivals some low-end medium format cameras and video quality that's on par with professional HD-DSLRs, the D750 is a serious imaging machine in a relatively lightweight and affordable package. ■

*For more information and full specs, visit Nikon Inc. at [www.nikonusa.com](http://www.nikonusa.com).*

This image was shot in extreme low light in a cave at ISO 12,800 and the D750 was able to capture a relatively clean image with loads of detail and very little chroma and luminance noise.







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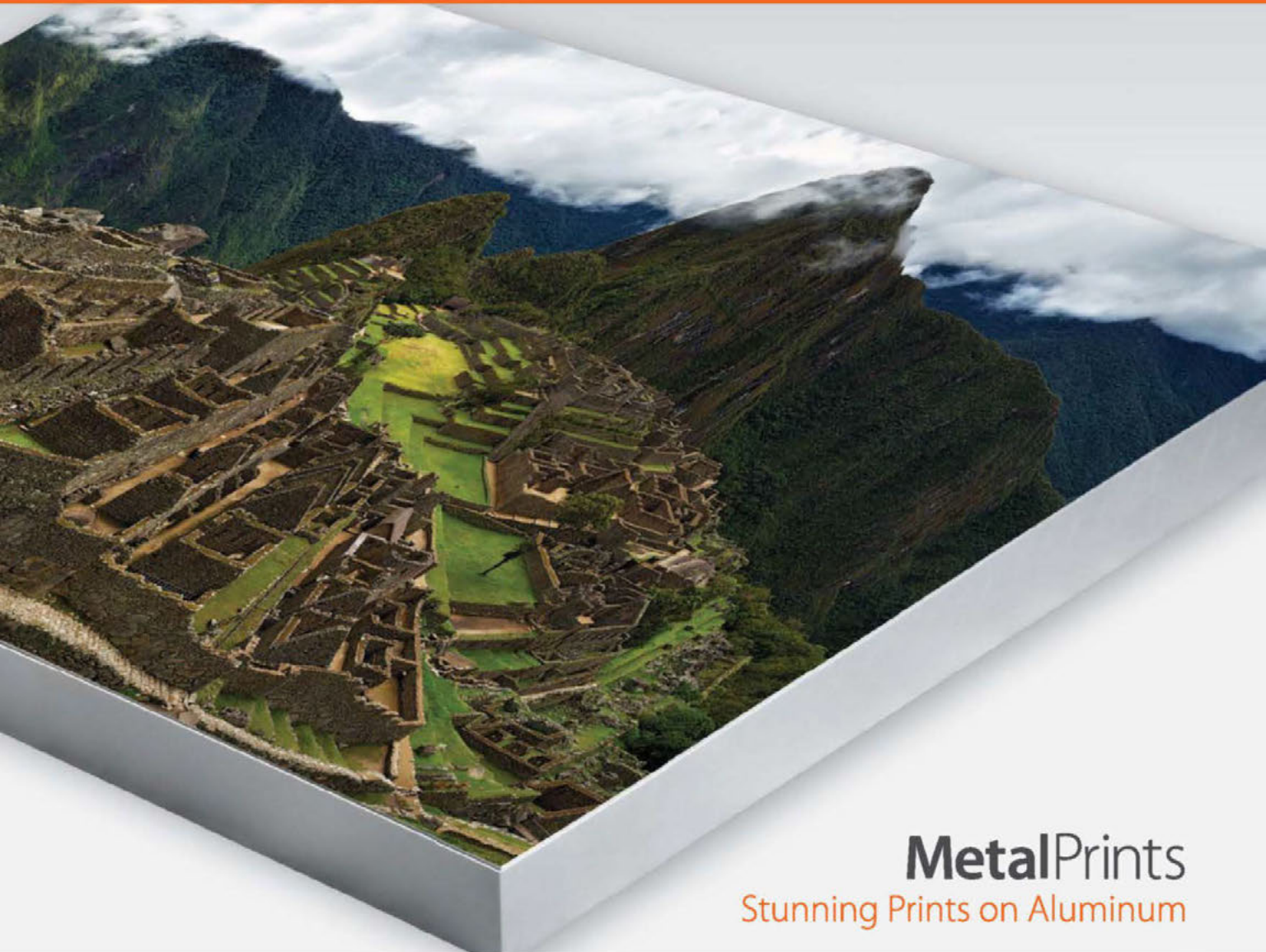


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# photokina 2014: A Look Back at the World's Largest Imaging Show

## MASSIVE PHOTO EVENT IN GERMANY OFFERS A PEEK AT THE FUTURE OF PHOTOGRAPHY

BY GEORGE SCHAU

**P**HOTOKINA 2014 IN Germany has been covered widely on the Internet already—including our own extensive reporting on the show on Shutterbug.com—so there's no need for me to rehash the major announcements from the event, such as the latest full-frame cameras from Canon and Nikon and the like. My photo report here is aimed at sharing some wider ranging thoughts and perspectives on this important biennial show and what it told us about photography today and where it might be heading tomorrow.

### YOUNGER CROWD

If you hesitated to go to photokina in the past because you thought it was mainly a business show—and indeed it once was—the organizers did a bang-up job of filling halls emptied by the shrinking exhibitor lists with photo exhibits, special events, photo ops, and a series of happenings in what they dubbed a “photo community.” All of this drew a decidedly younger crowd from day one,

which used to be reserved for strictly business types only.

There was a nonstop schedule for the photo enthusiast and students, including lighting demos, lectures on camera usage and photo history, as well as numerous corners, hallways, and even halls dedicated to photo exhibits, plus a rather incongruous “European bungee” setup in an alley next to a hall where kids were launched three stories high

out of a slingshot-like apparatus. Guess you could call it a photo op.

The show included the massive 3000-square-meter Leica Gallery, with a concentration of images of and by musicians, but there were also very incisive and powerful images on wounded war veterans, the struggles of black South Africans against apartheid, and some classic images from the likes of René Burri, Gerd Ludwig, and Thomas Hoepker, who was present for the celebration of his recent book, *Wanderlust*.

Cologne itself was fairly bursting with photo shows and events, with exhibits in every conceivable venue, as well as the opening of The PhotoBook Museum in another 3000-square-meter space in what seemed like an old factory





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There were shows and events throughout the city of Cologne that added to the feeling that Cologne may well become the photo center of Europe. Here, a giant walk-in camera obscura was constructed by Martin Streit on a plaza facing the massive cathedral.

building. (Google it for more info.) In short, go sometime, it's worth the trip.

## THE RISE OF SMARTPHONES AND MIRRORLESS

From conversations and even formal presentations at photokina, there was much wringing of hands about how the smartphone, while creating billions of picture takers, was eating the industry's lunch, mostly by impacting compact fixed lens cameras and camcorders, although the latter is feeling the heat from "hybrid" DSLRs as well. The answer to this, which seems somewhat obvious, is that from amongst the hordes will arise those who are truly excited about photography and thus will step up into image quality, which means welcome to the camera industry (and *Shutterbug* readership!).

Another topic was the rise of mirrorless cameras to the detriment of DSLRs, though it must be said that this was mostly pitched by companies with major skin in the mirrorless game. True, mirrorless has posted excellent growth over last year, but one could attribute this to so many companies jumping in, but in point of fact DSLRs still outsell mirrorless by at least 3 to 1. In short, reports about the death of the DSLR have been greatly exaggerated.

## NEW LINGO TO LEARN

Tech did not slumber at the show and I learned some new lingo in the bargain. One such is the APD designation for a lens. This came up in



Note the preponderance of young folks on the steps of the main entrance at the close of the first day of the show. Enthusiasts and amateurs used to be verboten until later in the week.

Photos © George Schaub

the announcement of Fujifilm's 56mm f/1.2 APD, which refers to the presence of an "apodization" filter located pretty much midway between the lens groups. The initial claim was that it added to the bokeh effect, a treatment of highlights much sought after by portrait and, at times, nature photographers.

Well, I thought, this is great: a very fast lens with a bokeh booster and a perfect focal length to boot. However, later, in conversation with Fujifilm tech folks, two matters came to light. One was that the lens actually has an "effective aperture" at and below f/5.6 that cuts the light transmission a bit from the "set" aperture. The other was that the bokeh is actually heightened via contrast, which results in a darkening of the out-of-focus areas, with more darkening the more out of focus the areas are.

For me, bokeh has always been a treatment of bright background highlight areas that gave images an almost ethereal presence. This APD thing was a bit of a turnaround, and while images I saw made with the lens still had a magical touch, it was, well, different, and took some getting used to. The lens also comes bundled with a three-stop ND filter should you want to bokeh it in bright sunlight. Later, poking around the halls I noticed a Sony 135mm STM (stepping motor) lens with a similar APD designation. Will we get copycat APDs from others?

Another take on unique depth-of-field effects is in the new Illum camera from Lytro (announced in July, with the first look at photokina). The Illum's

cumbersome body has a 40 "megaray" sensor and a 30-250mm integral lens that always sits at f/2. A display on the back acts as a normal LCD but also features what a clever Lytro spokesman punned as being a "distogram," which shows the amount of near and far focus light rays in blue and orange readouts, respectively. During processing you can change the effective aperture of the image from f/1 to f/16, for example, making selective focus in the field a supposed thing of the past.

Aimed more at digital than print display, you can have all sorts of fun with the supplied software and do things to the image that you might have only fantasized about in the past, like touching the image on an iPad and having different depth-of-field effects pop up (if that's your idea of fun).

## BETTER ELECTRONIC VIEWFINDERS

Perhaps it's the old dog principle, but I have never been a fan or convert to electronic viewfinders (EVF). I never saw the image as sharp enough, it was subject to blooming (flashes of whiteout when you move around the scene and hit a highlight), and, worst of all, the confounding lag and smearing when you changed framing or, heaven forbid, something active should be taking place in front of you.

The reason for all this, of course, was that the EVF showed a "signal" of the image and not a reflection (*à la* DSLRs) and that, at heart, the resolution was low and the processor in the camera couldn't





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keep up with the stream of information it was being asked to handle. It all led up to a WYSINWYG (What You See Is Not What You Get) imaging experience.

Well, at least we now have a euphemism for this, and perhaps a recognition of the problem, and it's all referred to as "image latency." And once you have the supposed cure then you can brag that you've found it, and that's what some camera makers finally did at the show.

The RGB dot number has risen, to as much as 2MP in some cases, and there's now also a measurable stat for the lag, which in some cameras like the Samsung NX1 read out as a five-millisecond "latency." Will testers now include this in their interminable charts and will we see it in camera company tech specs on their websites? Perhaps, but I still am not sold.

On another interesting viewfinder front, Fujifilm came out with a new camera called the X100T that features what the company calls a "rangefinder focusing option." In days of old rangefinder focusing had two images superimposed onto one another when you looked into the finder and you turned the focusing ring to make them one and achieved very fine focusing. It took a bit of getting used to, but a generation or more of great photographers used it and got great shots and guess what—there was no autofocus or focus peaking then!

In any case, the Fujifilm version splits the image electronically and moves a portion of the area focused upon into the lower right-hand portion of the frame. You then manually focus to get that view sharp. For me, it beats most manual focus setups in mirrorless cameras. Now, if they would only put a distance marker and a depth-of-field scale on the lens we could really make full use of it.

## IMPRESSIVE LENS TECH

Of course the lens is where it all begins, and there was a lot of interesting lens technology to discuss from the show. These included new handshakes between the lens and the image processor, much faster and more coverage for AF, and probably most intriguing, the proliferation of predictive focus improvements.



Everywhere you turned there were photo ops, setups intended to get the attendees involved and shooting. This looks like a daring feat (left) but the wide view (right) reveals it as a clever trompe l'oeil.



Every photo community event was jammed with intent photo enthusiasts. Here, Benjamin Von Wong gives a talk on Sunlight vs. Daylight using a Broncolor light.



The Fuji booth was always busy and in this shot I included their clever sign that shows humankind evolving from the burdensome DSLR trek to the new, freed and upright mirrorless user.



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The Fujifilm APD lens. Note the aperture offsets.

Courtesy of Fujifilm



© George Schaub

The engagement of the potential customer was a key to the "new" photokina, and here folks are given some time with the new 7D Mark II to catch the fast action of this footballer. Odd, I caught this with my trusty Canon G11.

The phraseology around all this was unique, including Sony's "4D Focus System" that is said to provide "constant focus throughout space and time," and Fujifilm's 0.06-second acquisition time (in the X30), and Samsung's OIC (Optical Inverse Correction), which is essentially a lens profile being fed automatically to the image processor in the camera to process-correct any aberrations, etc., in camera, which would seem to eliminate the need to do this in post.

Sony's 4D refers in part to its predictive focus abilities, as does Samsung's 3D AF, which the company tells us offers predictive phase-detection AF throughout the entire imaging area, with 153 cross-type sensors and 205 phase- and 209 contrast-detection arrays. Goodness.

As to AF and framing rates, the Samsung NX1 has 15 fps with AF and a 60-frame burst at full resolution, with AF acquisition speed at 0.05 seconds

(after slight pressure on the shutter release, I should add). To boost their claim Samsung has added an "Auto Sport" mode that they say will be able to track a pitched ball and swing of a bat so that the camera will grab the moment of impact (should the batter connect and both oncoming ball and batter are within the frame). This should, I suppose, also apply to a goal line catch by a tight end on a slant pattern. In any case, sports photographers can turn in

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Courtesy of Fujifilm

The Fujifilm X100T is a very handy compact with a split-image rangefinder option.

their press pass at the front gate, thank you very much.

### 4K FRAME GRABS: THE FUTURE OF PHOTOGRAPHY?

In the early, early days of digital imaging, every shot was essentially a frame grab, but now it's back to the future with the touted "4K Photo" wherein you can, as told at Panasonic's press event, pause at the perfect moment during your 4K video playback and make a still frame grab. It's suggested that you shoot at 1/8000 sec so you don't miss a millisecond of the action and then



© George Schaub

The real work with the Lytro Illum happens in the software, where you can interpret the image in many ways. The camera is really geared for digital, not print, display.

take the time to search the playback for your personal decisive moment. The resultant still image is 8.3MP (24MB for printing fans), but wait...there's more. When 8K video shows up (around 2020 says the company) you'll be able to grab a 33MP (100MB) frame.

So, with more cameras now delivering 12 frames per second, and the 4K image grab deal, it seems all you need do is point the camera in the general direction of what's in front of you and then sort it all out later to figure out what the essence of the moment was, and now is. This is photo retrospection taken to new heights. I have to ask: Does

all this miss the point of photography, or am I missing something profound here?

### OLD LENSES BACK IN VOGUE

If you check the auction sites and flea markets you might notice that older lenses are hot while older camera bodies are not. One reason might be the amazing array of lens to camera mount adapters available for using old glass on previously alien mounts. (Indeed, *Shutterbug* publisher Ron Leach walked the show with a mirrorless camera with a Contax 35mm lens attached.)

The available matchups are legion, and while you may lose some or all automation (obviously with some lenses, autofocus), and while interested parties may tell you that image quality can suffer, there's something really enticing about taking an old Summicron and putting it on a current mirrorless camera. It's actually also a pretty hip thing to do.

There are numerous companies offering these adapters on the Internet, but I am told by those in the know that Novoflex and Kenko are the way to go. (By the way, Kenko also offers optical finders, which might come in handy on an older EVF camera that's driving

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you nuts, and even a silicon diode meter for hot-shoe mounting, the use of which fits in well with a new camera announcement, discussed later on in this report.)

#### NEW PHOTO PAPERS

You know I had to check out the new photo papers at the show, and there's much to report, with trends being metallic and "true" baryta, plus news on the return of what many consider excellent workmanlike papers.

Canson did have a new RC paper, Photo Lustre Premium (310 gsm), an instant-dry type that seemed quite good stock with what I saw as a bit too much warmth for my liking, but this seems to be more akin to European tastes. Their new PhotoArt Pro Canvas (a whopping 395 gsm) is available in rolls only, but is OBA (Optical Brightening Agent) free, made from 100 percent cotton, and is available in matte or luster finish. This was a truly beautiful paper that can be applied equally well for use with portrait and landscape images.

Hahnemühle showed me a number of FineArt Baryta Satin prints, made from a 100 percent alpha-cellulose blend that of course is acid-free and tested to "museum quality" standards. They told me that it can be printed via pigment and dye printers, comes in sheets and rolls, and that ICC profiles are already available on their website. Another stock that caught my eye was their new Canvas Metallic (350 gsm), and its embedded opalescence really shined, discretely of course, under the gallery lighting under which it hung.

Moab's new Juniper Baryta Rag (305 gsm) is a 100 percent cotton and "true baryta" (barium sulfate) paper with no OBAs. While somewhat warm (typical of OBA-free) it's not as warm as other "barytas" I saw, and the surface is intriguing, a gloss with a slight texture that makes the image pop. It's available in cut sheet and roll.

Another stand that caught my eye was the Japanese handmade paper (washi) company Awagami. The images in their booth had a special aura and presence unmatched by others around them. These handmade papers are specially coated for use in inkjet printers and all the materials used, they assured me, are "organic," acid-free, and pH neutral. They're distributed in the US



Hahnemühle's FineArt Baryta Satin.

Courtesy of Hahnemühle

by Freestyle and the paper is available in standard cut-sheet sizes, though they will handle special order sizes as well.

Speaking of Freestyle, that's where those of us in the US can get black-and-white film, paper, and chemicals from FOMA, the Czech firm that has been coating paper and film since 1921. They offer Fomapan film in various speeds, Fomabrom paper that lovers of the old Portriga should check out, and of course the processing chemicals for the above.

And speaking of distributors, I'm happy to report that Ilford inkjet papers are back in play. The Swiss company that had fallen on hard times was bought out by one of its distributors and manufacturing facilities have been moved from Switzerland to Germany to create the full line of past products and new ones to boot, all based, according to the spokesman, on the original recipes. The MAC Group will be handling distribution in the US.

#### DRONES AND COPTERS

You might want to check out the height of your air rights on your deed. A whole slew of new camera-carrying, lightweight copters and drone-type aerial vehicles are coming on the market, and remote control flight has and will send them to places previously unimagined to make images like we've never seen before. The videos and stills on display were trippy and dreamlike in some instances, although the commercial uses seem to be mainly shots of yuppies cruising down Highway 101 in a convertible. Despite that, these lightweight flying machines will open up a new class of imaging and a new aspect of the trade for adventuresome photographers. And all you moms who thought that junior was wasting his life away by spending all his time in the basement playing video games with a toggle device will find that they now have a marketable talent as well.



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This operator is really intent on keeping the copter within the booth bounds. Note the tiny camera aboard.



Courtesy of Leica Camera

The Leica M-A, for analog. Note the handy ISO reminder dial on the back. That's about all the help you get.

## MY FAVORITE CAMERA AT THE SHOW

I thought I'd end this report with what, for me, was perhaps one of the more surprising and pleasing camera intros at the show. It doesn't have an LCD, it has no batteries, no in-camera meter, no exposure modes, no drive modes, and certainly there will be no chimping. Well, there is one little aid: a reminder dial for what ISO film you have loaded (look Ma, no DX-code reader!). No, it's not another Lomo, or some pinhole camera, it's the Leica M-A, for "analog." It comes with a Summarit-M 50mm f/2.4 lens, and a helpful box of Kodak Tri-X included. By the way, this is the camera I hinted at when suggesting the Kenko silicon diode slip-on meter might come in handy. ■



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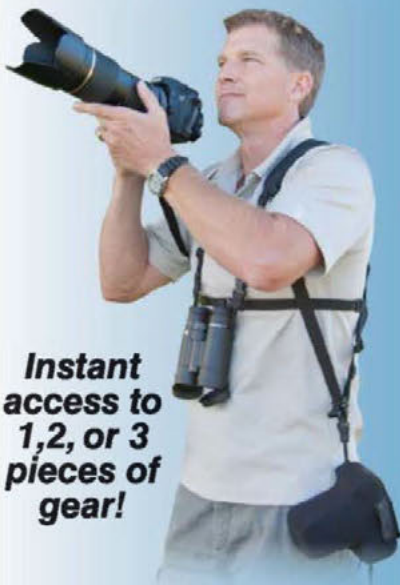
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# A Guide to the Best Flash Modifiers

## FLASH IS GOOD BUT MODIFIED FLASH IS EVEN BETTER

BY JON SIENKIEWICZ

**M**ODERN DIGITAL CAMERAS perform so well under dim light at high ISO settings that some photographers haven't used a camera flash for months (maybe even longer). Well, here's a news flash for them: for a small investment and a little practice they can turn most shoe-mount flash units into a controllable package of portable sunshine.

There are three general reasons to use flash modifiers. The first is to remove the dark shadows that direct flash creates. The second is to remediate the redeye effect that results from flash reflecting from the inner wall of the subject's eyeballs. The third is to create lighting that flatters the subject and makes the overall photograph more pleasant. There are technical reasons to use modifiers, too, for instance to increase flash coverage of wide shots and to reduce flash output for macro images.

These improvements come at a price. Virtually all flash modifiers eat light, and that can translate into shorter working ranges and exposure limitations. Some are downright ungainly and clumsy to use and even more awkward to store and transport. Others are large and billowy and therefore dangerous to use on windy days. But for all their shortcomings, the rewards outweigh the deficiencies if you want to improve your flash photos and, for the most part, once the flash modifier has been attached to the shoe-mount flash, operation proceeds as usual. TTL flash will continue to operate TTL and other auto flash systems generally will too.

### CATEGORIES AND USES

Flash modifiers can be separated into

three categories. First come the domes, so-called because they resemble small, translucent bowls or the shrunk remnants of a food storage container left in the microwave for too long. They fit on top of the flash unit, covering the flash tube window. When the flash fires, it illuminates the dome and the light is diffused and scattered.

The second type of flash modifier is the reflector. These attach to the body of the flash unit and are positioned so that light from the flash tube bounces off of their white or silver surface and is thereby dispersed. The result is similar to bouncing light from a wall or ceiling with these advantages: the light is stronger because it doesn't travel as far; the color temperature is more accurate and consistent because the color of the reflective surface is constant; the unit is portable and can be used when the photographer is not near a wall or there is no ceiling—like outdoors, for instance.

The portable softbox, the third flavor of flash modifier, resembles a lopsided box kite with one large, flat translucent surface. The flash unit is positioned on the opposite side of the box so that the full force of the flash tube is directed toward that surface. They work remarkably well, delivering soft, even lighting. Drawbacks: they are often ungainly and conspicuous. On the plus side, they collapse or fold up for easy transportation and storage. And they can be used with the flash off-camera to light up small items for macro photography and for attractive portraits.

With all that in mind here are some good examples of all three types. There are many more on the market, but I chose these because to me they are emblematic of the categories. Check the websites of the companies mentioned for more on their product lines.

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## LIGHTING

### FLASH MODIFIERS

#### HARBOR DIGITAL DESIGN BOUNCE DIFFUSER

The Harbor Digital Design Bounce Diffuser is a dome-type diffuser that slips over the business end of a shoe-mount flash and softens the output. It attaches without straps and hardly changes the appearance of the flash unit. The base is made of durable plastic and the dome is made of a white semi-transparent material. I have found the light loss with this product to be minimal.

**Price:** \$19.95

**Info:** [www.harbordigitaldesign.com](http://www.harbordigitaldesign.com)



Harbor Digital Design Bounce Diffuser

#### GARY FONG LIGHTSPHERE

Gary Fong is quite a photographer himself in addition to being an inventor and entrepreneur. The Gary Fong Lightsphere Collapsible Generation Five Speed Mount is a soft-bodied dome that gently disperses the strobe light, both softening shadows and smoothing the overall illumination. It features an interchangeable dome system and conveniently collapses for storage.

**Price:** \$59.95

**Info:** [www.garyfongestore.com](http://www.garyfongestore.com)



Gary Fong Lightsphere Collapsible

#### SPINLIGHT 360 EXTREME

Made in the USA, the SpinLight 360 EXTREME Modular System is a hybrid product that combines the best features of domes and reflectors. Compatible with several popular flash units, the kit includes clear, white, and half domes, a snoot, reflectors, and colored gels. Once attached, it's easy to control the direction and quality of light from the flash because the entire apparatus rotates 360 degrees (hence the name). Fun system to use and very potent.

**Price:** \$149

**Info:** [www.spinlight360.com](http://www.spinlight360.com)

#### THE SPINLIGHT 360 MODULAR SYSTEM



SpinLight 360 EXTREME Modular System

#### EXPOIMAGING ROGUE FLASHBENDER

My favorite reflector is the ExpoImaging Rogue FlashBender. Think of it as a prehensile reflective sheet that can be formed into the shape of a jai alai basket, a flat wall, or anything in between. Mold it into what you will; it's held in position by three bendable spines that line the back. It attaches quickly via an integrated belt and fits virtually any brand of flash. It comes in several sizes, but the size I find most useful is the Large. The construction is top-notch and it's color neutral: it does not alter the color temperature of the reflected light. When finished, fold the FlashBender up and slip it in your bag. Talk about flexible.

**Price:** \$39.95

**Info:** [www.expoimaging.com](http://www.expoimaging.com)



ExpoImaging Rogue FlashBender

#### DEMB SAUCER FLIP-IT! DISH REFLECTOR

The Demb Saucer Flip-it! dish reflector for hot-shoe flashes reminds me of a foldable camping cup. The unique design opens to create a scoop-shaped, concave reflector that redirects the output from the flash toward the subject. The reflector is compact, just 5x5.5 inches, and also easy to use and carry.

**Price:** \$34.95

**Info:** [dembflashproducts.com](http://dembflashproducts.com)



Demb Saucer Flip-it!



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## DOT LINE UNIVERSAL BOUNCE DIFFUSER

The low price leader—but still one of the most effective—is the Dot Line Universal Bounce Diffuser, which clocks in at less than eight bucks. Nearly resembling the warped canopy from a Conestoga wagon of yesteryear, this cloth reflector sits above the flash head like a tent and nicely diffuses the light output. It's compact, folds up into practically nothing, and is priced right—and definitely belongs in your camera bag, even if you don't use a diffuser often.

**Price:** \$7.99

**Info:** [www.dotlinecorp.com](http://www.dotlinecorp.com)



Dot Line Universal Bounce Diffuser

## LUMIQUEST STROBIST KIT

The LumiQuest brand has been around for what seems like centuries, and the LumiQuest Strobist Kit is a fun package that includes their SoftBox III, FXtra gel holder, eight color gels, and attachment rigging. It's much like having a studio in a can. They also offer the popular standard LumiQuest SoftBox, which is seen on better cameras everywhere.

**Price:** \$79.95 (Kit); \$44.95 (SoftBox)

**Info:** [www.lumiquest.com](http://www.lumiquest.com)



LumiQuest Strobist Kit



LumiQuest SoftBox

## LASTOLITE EZYBOX SPEED-LITE

Pros use softboxes in their studios on a regular basis. We can all enjoy most of the benefits of a softbox by attaching a portable version to a shoe-mount flash. The Lastolite Ezybox Speed-Lite attaches directly onto a flashgun, either on or off the camera. It's very portable and light, and of course folds up for transporting. With an 8.5x8.5-inch front panel, it's large enough for portraits and small enough for easy storage. Note that kits are available for both Canon and Nikon cameras.

**Price:** \$105

**Info:** [www.lastolite.com](http://www.lastolite.com)



Lastolite Ezybox Speed-Lite

## XP PHOTOGEAR MICROBOX PCD KIT

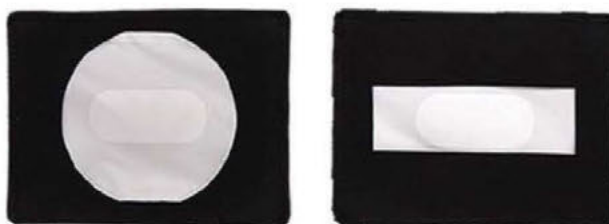
If you want a softbox that's on the large size, take a look at the XP PhotoGear Microbox PCD Kit. It's easier to use than it is to say and has a 10x13.9-inch front panel that features a double-layer diffuser inside for better light dispersion and to eliminate hot spots. The kit includes a collapsible softbox, a circular mask, and a strip mask for modifying the shape and output of the light.

**Price:** \$54.95

**Info:** [www.xpphotogear.com](http://www.xpphotogear.com) ■



XP PhotoGear Microbox PCD Kit



*Product photos are courtesy of the manufacturers.*



# SHUTTERBUG



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TECHNIQUES

PRO'S CHOICE

CLIENT: BEVERLY HILLS HOTEL

▼ "Whereas I often have carte blanche to shoot as I decide, in this instance the hotel said it was important to see the private pool in the background, so that governed the angle of the shot. In a room such as this, you also want to show the fireplace, since that attracts guests." Vitale added umbrellas (one on each side) to open up the entrance to the outdoor pool. "Two umbrellas were close to the entrance, which I retouched out, and one was at camera position."

# The Suite Life

## HOSPITALITY PHOTOGRAPHER PETER VITALE CAPTURES THE WORLD'S BEST HOTELS, RESORTS, AND CASINOS BUT IT'S NOT ALL FUN AND GAMES

BY JACK NEUBART



Photos © Peter Vitale

**H**OSPITALITY PHOTOGRAPHY FOCUSES on hotels, resorts, and casinos but it's not just about capturing luxury accommodations and lush exterior shots of surrounding vistas and scenery. It's as much about highlighting comfort, relaxation, and fun. The pictures may include special dishes prepared by gourmet chefs, waiters serving tables, and guests enjoying the ambience and amenities. It's a smorgasbord of images designed to appeal to a wide range of tastes, albeit presented with an air of

sophistication to make any potential guest feel like a prince or princess upon arrival. And the photographer must be able to glide effortlessly and efficiently from one situation to the next, capturing numerous perspectives in a relatively short span of time. That's where Beverly Hills-based photographer Peter Vitale enters the picture.

### A DIFFERENT APPROACH

Most recently, Vitale took on the added role as editor-at-large for *Milieu* magazine, although photography remains at the core of his soul. A self-

taught photographer, Vitale started shooting hospitality 14 years ago. Prior to that he was shooting residential interiors primarily for shelter magazines. Shelter magazines are publications that focus on residential architecture and interior design. "There was a bit of crossover when *Architectural Digest* had me shoot some hotel suites for a special feature," Vitale recalled. "When this story was published, a couple of hotel marketing directors came knocking. Once I embarked on this road, I found that I enjoyed the challenge of shooting hospitality and the



## CLIENT: THE RITZ-CARLTON CHICAGO (FOUR SEASONS)

► The website cropped this shot of the Presidential Suite (overlooking Lake Michigan) to a horizontal, in keeping with the horizontal format of all the photos featured. Vitale used umbrellas to balance the window area against the sky, with these same lights moved behind the furniture (to simulate natural backlighting) in a second exposure. He also had to shoot additional exposures of the windows for the view itself and retouched out any reflections, compositing all these frames into the final image.

many directions in which it took me.” So now this is his bread and butter.

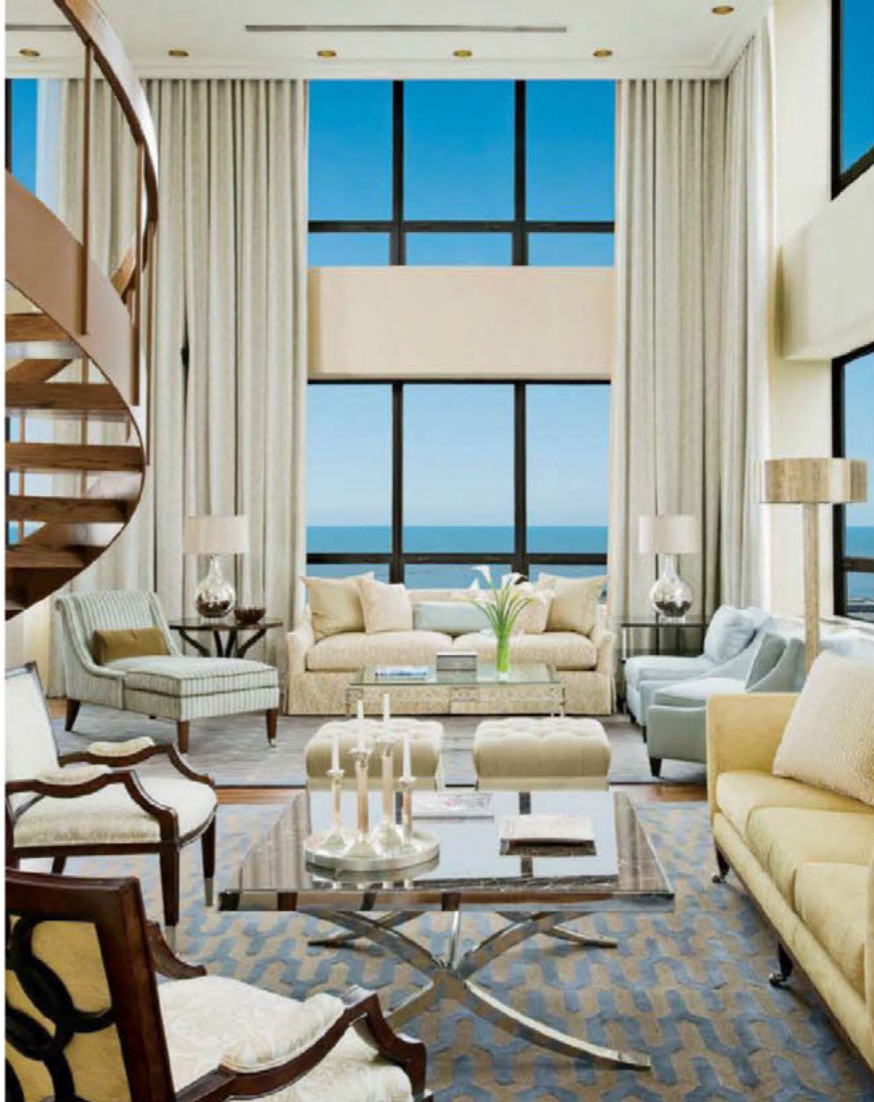
In contrast to architectural photographers, Vitale doesn't rely on technical cameras with their various movements or even tilt-shift (perspective control) lenses (which he views as “cumbersome”) for smaller format cameras. Granted, when he shot film, he did go the large and medium format route. But with the switch to digital, about seven or eight years ago, he instead chose to make his perspective corrections in post, in Photoshop, more recently with the aid of PTLens ([www.epaperpress.com/ptlens](http://www.epaperpress.com/ptlens)). “I've found this plug-in to be quite accurate, and it corrects the distortion around the edges in wide-angle shots.”

## A LOVE AFFAIR WITH DIGITAL

“Part of my love affair with digital,” Vitale explained, “is that I don't have to schlep around all these large cameras.” The camera Vitale currently works with is a Nikon D3 (formerly a D2X, and a D2 before that). Much of his work is shot with two zooms: a 17-35mm and a 35-70mm, both f/2.8 Nikkors. He shoots mostly on a tripod—a Gitzo with a Manfrotto geared head, with the camera tethered to a 17-inch MacBook Pro.

“When I was using Sinars and Mamiyas for my hospitality work, I could have added a digital back, but I couldn't justify the cost when a smaller format would do. The hospitality work I do is destined for the web, so I don't need that high-resolution capture. What's more, when I shoot residential properties, the images from my Nikon D3 are good enough for the leading architectural and design magazines, among them *Architectural Digest* and *Milieu*. Even for a double-page spread.”

Vitale loves digital for another reason. Most of his work consists of digital composites, shooting numerous exposures keyed to highlight and shadow values. One image may consist of as many as 15 elements “to ensure that I capture all the important tonal detail in the scene.” Where warranted,



## CLIENT: FOUR SEASONS HOTEL FIRENZE (FLORENCE)

▲ It was important to show the garden view from the bedroom. Unfortunately, the sky was overcast and portions of the garden were in shade. Vitale opened up the shadow areas while letting the sky wash out. “Sometimes when you have a saturated sky in a shot like this, it looks unnatural, as if you pasted it in (or HDR'd the shot).” Profotos were used for the window area and to fill in the chairs next to the windows. There was also a light positioned in the adjoining room, for the curtains and to avoid excessive contrast.



**CLIENT: FOUR SEASONS HOTEL FIRENZE (FLORENCE)**

▲ What determines if you turn room lights on or off in a shot? “Often, it’s a matter of aesthetics. This chandelier certainly deserved attention, so I left it turned on. But just to test the waters, I also shot the space with it switched off. As you can see, the warmth of the tungsten bulbs contrasts nicely with the cool interior. But I did tone down the yellow to some degree. I shot all the window areas with strobe individually, having to place a light in the shot (because it wouldn’t reach from camera position, and later retouched out) to light the curtains.” Vitale shot this scene both with and without the staff in the picture. Clients always like choices.



he’ll employ another plug-in, LR/Enfuse ([www.photographers-toolbox.com](http://www.photographers-toolbox.com)), for blending images from Lightroom. “I do all the retouching and compositing myself, because when I shoot, I know how I’m going to put it together later.”

**LIGHTING: KEEPING IT REAL**

“Before digital, I had to place more emphasis on my lighting, to recreate the impression of natural lighting as much as possible. Whether digital or analog, my goal is always to create an image that does not look lit.”

He continued: “The only time I use my lights is to balance something hot, like a window, or for fill. I don’t use my lights as a primary light source. They always play a supporting role.”

Regardless, Vitale comes prepared with two Profoto Acute 2400 power packs and several heads. He prefers these packs because they’re dual voltage “so I can take them anywhere in the world. I routinely travel with my own lights.” And when he shoots overseas, he files an ATA Carnet so he can seamlessly bring his gear into a country and take it back out without paying duties and taxes. Lending a hand in schlepping all this gear is his first assistant, Harry Greiner. The hotel assigns additional help once they reach their destination.

It must be noted that Vitale opts for umbrellas with diffusion socks as his light shapers. They pack easily and are quick to set up for the many different shots that may be required on a given day. He uses a PocketWizard Plus III for remote triggering.

**LIGHTING WITH TUNGSTEN AND CANDLELIGHT**

Nighttime shots are rare these days, but when they do call for lighting, tungsten lights make an appearance. More often than not, when an interior needs additional light to balance with the existing tungsten fixtures, night or day, Vitale will ask the hotel to supply a number of table or desk lamps, which

**CLIENT: FOUR SEASONS HOTEL FIRENZE (FLORENCE)**

◀ The hotel wanted a sunset shot of the dining table overlooking the scene. This terrace is an exclusive dining spot made available by the hotel, situated on the rooftop of a shop on the bridge. “The clouds opened up at just the right moment for me to capture this vista. However, the story doesn’t end there. I first shot a wider view and a little lower to reveal more of the tabletop, and added this lower half of the table in the composited image, correcting perspective so the shots aligned perfectly. I did try lighting the table and flowers, but preferred the shot unlit and opened it up in Photoshop.”



## CLIENT: FOUR SEASONS HOTEL HAMPSHIRE

► This hotel is a restored historic Georgian manor house situated in the English countryside outside London. "This is considered a lifestyle shot (featuring people enjoying the amenities, even though the focus is not on them). We shoot these spaces wide, where we see the entire space. Then we also include people, to animate the scene. The shot is a composite, first focusing on the cocktail glasses in the foreground (with the bartender playing a supporting role), and then the people. The camera (on a tripod, with focus remaining on the foreground) remained locked in place for both exposures. The people in the background were with the hotel, so we kept them out of focus. When people are in the shot, I move up to a 35-70mm zoom (in this case, at 70mm) to avoid distorting them."



## CLIENT: FOUR SEASONS HOTEL HAMPSHIRE

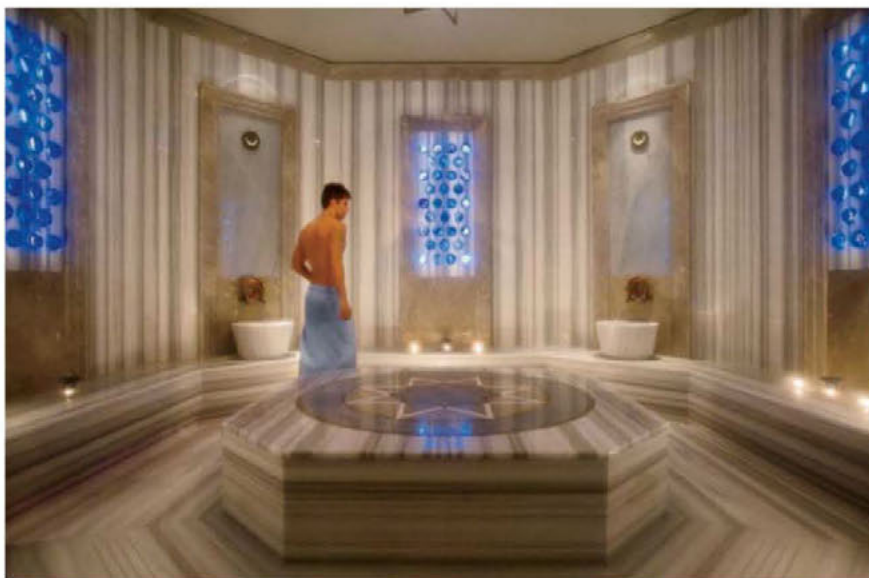
► This is considered a service shot, even though the housekeeping staff is in the background and out of focus, simply because there are no guests in the shot. "I like the dynamic of him being there, but not posed. He was, in fact, turning around and walking away." This image was shot entirely with ambient light. "Were I to use flash, given that he was moving around, I might have missed the moment while the flash was recharging."



he strategically places around the set. "I strive to place them where they won't show and are not producing unrealistic shadows. That gives me just a little bit of a glow of light where I want it, and then, when I composite the image, I can use as much or as little of that glow as needed."

Vitale noted further: "We do a lot of shots with candles. You can't throw too much light at that, or you lose the effect. Sometimes I do really long exposures just for the candlelight, to capture the illumination from the candles (specifically, the 'underlighting') and composite that into the shot, together with a better exposure of the candles."

Does hospitality photography have a downside? Well, you may be forced to travel to exotic locations, such as Turkey, Maldives, Bora Bora, Seychelles, Russia, and the Middle East—places where Vitale has shot. And, as he experienced, you will have to spend up to two or three weeks at a luxurious hotel, all expenses paid, meals and drinks included, with possibly a spa treatment added. They might even throw a car and tour guide into the mix. "Of course, I take pictures during these outings, which I give to the hotel in return." Obviously, it's a hard life. Although, Peter Vitale appears to be enjoying it immensely. ■



## CLIENT: FOUR SEASONS HOTEL ISTANBUL AT THE BOSPHORUS

▲ Spas, such as this hammam (Turkish bath), are yet another category in a hospitality shoot. "They wouldn't let me photograph a woman's spa, given the proprieties imposed by the Muslim religion. We wanted to keep the ambiance and to make sure the votive candles were clearly seen. I did have to light this a little bit, which was tricky because the floor was very wet. Using only the tungsten modeling lamps, we placed our lights on the built-in seating area along the wall, which proved to be a precarious perch, making sure to keep cables away from the wet areas. I was in the doorway. The space was steamy but much of that escaped and didn't steam up the lens. That said, I did add a diffusion filter to give the shot more of an ethereal quality. The model had to stand still for a relatively long exposure."

To see more of Peter Vitale's work, visit [www.petervitalephotography.com](http://www.petervitalephotography.com).





## KA'AHUMANU CHURCH, WAILUKU, MAUI

A single image made with a DJI Phantom 2 Vision Quadcopter with FC200 camera. "I shot this using the DNG Raw file. Using Adobe Lightroom 5, I was able to pull down the highlights and open up the shadows despite shooting directly into the sun." - RJB



© Randy Jay Braun

# Those Daring Photographers and Their Flying Machines

## THE ASCENT OF IMAGING DRONES AS PHOTOGRAPHIC PLATFORMS

BY LORIN ROBINSON

**D**RONES! REMEMBER THE day when the word referred to male bees whose only role was to hang around the hive and fertilize the queen bee—in flight! They couldn't even sting and, of course, died upon mating.

Today drones are better known as unmanned military aircraft that appear in the news with ever-increasing frequency. There was less coverage years ago when they were used strictly for surveillance. But now, as they fire ordinance on suspected terrorist targets, these high-tech vehicles are rewriting the rules of aerial warfare.

So it shouldn't be surprising that consumer use of drones—albeit nonviolent ones—should evolve. Military technology frequently “trickles down” to the private sector.

Enter the quadcopter.

Originally developed as a toy, several manufacturers have refined the four-bladed flying machines to the point that they serve admirably as still and video photographic platforms for photographers interested in aerial photography who prefer not—for reasons of cost, training, or fear of heights—to shoot from traditional aircraft or ultralights.



Courtesy of DJI

The DJI Phantom Quadcopter with controller, one of several photo-enabled quadcopters on the market.

Standouts in the field include DJI's new Phantom 2 Vision+, Walkera's QR X350 Pro, Parrot's AR Drone, and





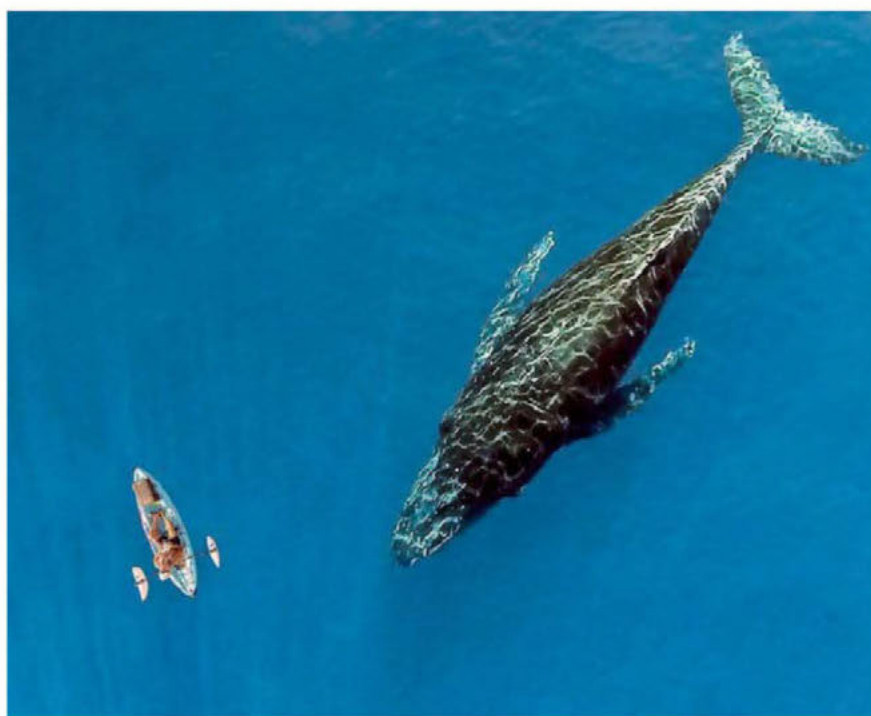
© Randy Jay Braun

## KAPALUA RESORT, MAUI

"I love the thrill of flying way out over the ocean. But I know three people who have lost drones in the ocean off of Maui, myself included. Still, the risk versus reward is often attractive." - RJB

Storm's Drone 6. Which unit to consider depends on several factors, including your photographic mission and, of course, what you're willing to pay. The price range, depending where you buy, is \$350-\$1200. The best way to compare features is to check the manufacturers' websites. Another good source of information and pricing is HeliPal.com, which bills itself as the "largest online helicopter store." To get a handle on quadcopters as imaging platforms, *Shutterbug* sought the help of three expert quadcopter pilots/photographers.

**Randy Jay Braun** ([www.randyjaybraun.com](http://www.randyjaybraun.com)), Maui, Hawaii—Over the past 27 years, Braun has had a portrait studio, followed by 18 years as a successful gallery operator. Today he teaches and writes. He recently decided to learn about GoPro Hero cameras. He then bought a quadcopter. Aerial photography is now a growing percentage of his professional work—perhaps 25 percent. He recently



© Randy Jay Braun

## BRAUN WITH WHALE

"I have photographed whales from my kayak for seven seasons. I saw this one coming to check me out. Within 10 seconds I literally tossed my DJI Phantom 1 into the air before it even locked in GPS coordinates. I had set the GoPro Hero3 so it would shoot every two seconds. I didn't realize the whale was next to me, because I kept looking up, trying to keep my drone under control. I nailed the shot pretty well. It is one of those iconic images a photographer dreams of." - RJB





## TECHNIQUES

### AERIAL PHOTOS

#### RAJA AMPAT, INDONESIA

A four-image pano made at 170 feet with a DJI Phantom Vision with FC200 camera. "This region of Indonesia is dotted with beautiful islands in azure seas and was the main reason I decided to bring the quad with me on a dive trip." - JC



© Julian Cohen



© Julian Cohen

#### DAWN, RAJA AMPAT, INDONESIA

A five-image pano taken at 300 feet with a DJI Phantom Vision with FC200 camera. "I wasn't sure how the sensor would handle shooting straight into the sun, so I chose a sunrise to avoid the sun coming out as a white ball. The DNG Raw files allow processing to reveal the colors in the sky as well as reflections in the water." - JC

published a book about small drone photography techniques—the first book on the topic ([www.randyjaybraun.com/shop/aerial-drone-photography](http://www.randyjaybraun.com/shop/aerial-drone-photography)). In April, drone manufacturer DJI named Braun as the first "Visionary" in its new Aerial Drone Hall of Fame.

**Julian Cohen** ([www.juliancohen.com](http://www.juliancohen.com)), Sydney, Australia—Cohen is primarily an underwater photographer who has spent the last seven years photographing marine life of the Red Sea, Indonesia, and other locations. He was introduced to quadcopter photography by Eric Cheng, director of

aerial imaging, DJI, when he met him in Tonga. He had been considering aerial photography. When he saw Cheng's DJI Phantom he was hooked.

**Romeo Durscher** ([romeoch.prosite.com](http://romeoch.prosite.com)), San Francisco, California—Durscher was born and raised in Switzerland and moved to California in 1997 hoping to work on a NASA space mission. Initially, he worked at Stanford University on one of the scientific instruments for the Solar Dynamics Observatory mission. In 2009, NASA asked him to provide education and outreach for the mission.

He started doing photo projects and flying RC airplanes in 2007, switching to multi-rotor (quads, hexcopters, and octocopters) in 2012. He and partner Mark Johnson run Visual-Aerials.com.

**SHUTTERBUG:** Have you used an aerial photography platform other than imaging drones? If so, what's been your experience?

**RANDY JAY BRAUN:** I have been hired to shoot from doors-off helicopters. It is always a rush shooting because the helicopter runs about \$1600 per hour and the client begs for a quick shoot. The pilot can only hover in safe locations, and not too low or close to buildings.





© Julian Cohen

## SYDNEY HARBOUR

A six-image pano at approximately 300 feet made with a DJI Phantom 2 Vision with the FC200 camera. "I stood in a small park near the Sydney Harbour Bridge at dawn on a windless day. I flew out, grabbed the shots, and flew back in a flight lasting about 10 minutes." - JC

With drones, I can place my camera anywhere a bird can fly—between tree branches, in hotel courtyards, even inside large rooms with high ceilings. Imagine using a tripod that can extend 400 feet up. Essentially, a quality quadcopter is a magic tripod. GPS-assisted stability means one can capture panoramas simply by yawing slowly around the drone's central axis. It sounds difficult but becomes simple after the first time you try.

**JULIAN COHEN:** Helicopters have the advantage of being able to stay airborne for long periods. Quads are time restrictive—about 20 minutes before the need to change batteries. Helicopters also allow the use of larger cameras and a variety of lenses. But they are big, noisy, and, for subjects such as wildlife, problematic. Although quads mainly carry small cameras, they are portable and far less expensive than other platforms. Yet they offer similar capabilities.

**ROMEO DURSCHER:** The multi-rotor has the distinct advantage of being able to hover. The multi-rotor presents an easier-to-fly platform than traditional helicopters along with greater capability to recover from equipment failure. Hex and octo craft can lose a motor and still fly.

**SB:** Do you shoot aeriels for commercial customers or to sell? Or both?

**RANDY JAY BRAUN:** Photographers are tiptoeing into commercial work with cautious optimism anticipating that the FAA will start issuing licenses to small-format drone flyers who want to operate commercially. In addition to some commercial work, I also produce gallery images and stock footage from around the world.

**SB:** For readers who are unfamiliar with quadcopters, can you briefly discuss their operation and limitations?

**RANDY JAY BRAUN:** The new generation of quads has several built-in intelligent systems. They will lock-in to global positioning satellites and use them to reference their location. If I let go of the controls on the transmitter, the quad comes to a halt and hovers until I start moving the joysticks again. The quad will sit motionless in a wind up to about 23 miles per hour. I have made successful three-shot HDR captures in the wind. A drone pilot should keep the craft below 400 feet, stay at least three miles from airports, keep a direct line of sight to the craft, not fly over groups of people, and always be in complete control.

**JULIAN COHEN:** Many later model quads have a controller that prevents the quad from leaning over more than a set number of degrees when flying, thus keeping it stable and preventing flips.

Before this, learning to fly a quad was as difficult as learning to fly a full-size helicopter. They also come with GPS that keeps them stable in three dimensions, adding to ease of flight for beginners.

Quads are sensitive to wind and are best flown in calm conditions. Although they will fly in about 10-15 knots of wind, the calmer the better. Straight out of the box my Phantom will fly about 1500 feet. With additional modifications, it is possible to fly about five miles. The main limitation is battery life. The Phantom line has a proprietary battery that lasts 20-25 minutes, but most other quads have flight times around 10 minutes.

**SB:** Have you ever cracked-up a quadcopter?

**RANDY JAY BRAUN:** Everybody has crashed at least a couple of times.



© Romeo Durscher

## PACIFIC OCEAN SHORELINE, DAVENPORT, CALIFORNIA

A five-image pano taken at about 330 feet from a DJI Phantom with a GoPro Hero3 camera. "I took the first image looking straight down, then tilted the camera slightly up for the next picture, and so on." - RD

I have had about five memorable crashes, all my own fault. Fortunately, a quadcopter adds up to a 2.5-pound pile of replaceable parts. Crashes teach humility. I fly much slower and more cautiously than I did a year ago, even though I am vastly more experienced.

**JULIAN COHEN:** I took my drone to Indonesia on a diving trip. One morning, as I flew about 300 feet over the sea, the quad dropped like a stone. I think one of the motors malfunctioned. Over land you can collect the pieces and repair it, but over water, even if recovered, it would never fly again. Salt water would



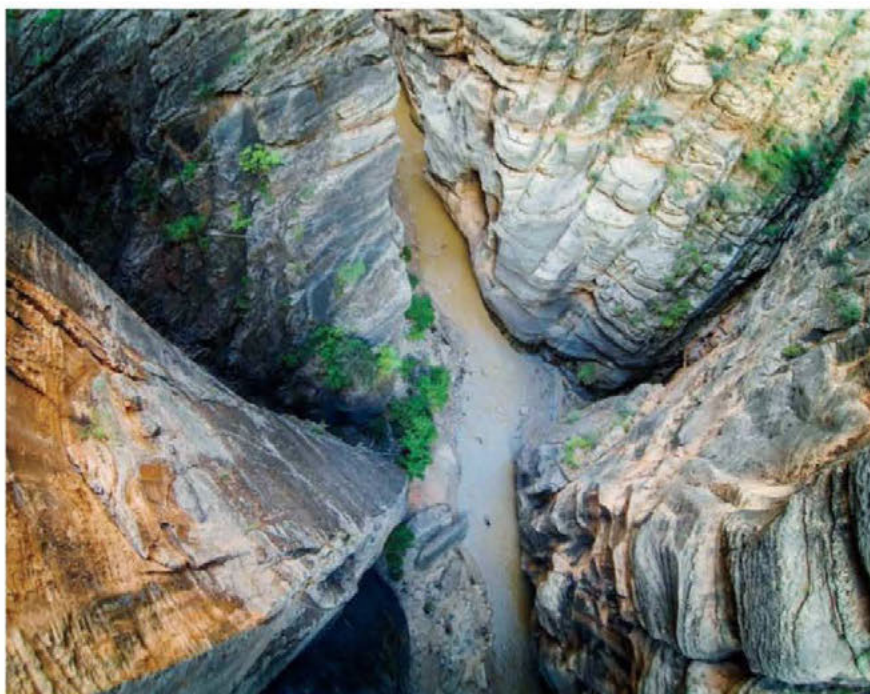


## NOTRE DAME, PARIS, FRANCE

A six-image pano made with a DJI Phantom with a GoPro Hero3 camera. "We launched from the river, went straight up, and took this series of images. The entire flight was only four minutes." - RD



© Romeo Durscher



© Romeo Durscher

## NARROWS CANYON GORGE, ZION NATIONAL PARK, UTAH

A single image at about 200 feet made with a DJI Phantom with a GoPro Hero3 camera. "After a two-hour hike upstream into the canyon, we flew straight up and shot straight down. There was no GPS reception and winds made it challenging to keep the drone centered." - RD

have fried all the electronics.

**ROMEO DURSCHER:** We have sometimes chased a shot knowing our battery power was borderline. This has led to losing power and landing in trees. Once we landed in a large oak tree near a homeless encampment. It was sundown so we had to leave it until the morning. Meanwhile, its bright locator LED flashed high in the canopy above. We wondered what those in the camp would think of the bright purple flashes high in the darkness.

**SB:** What is your drone toolkit?

**RANDY JAY BRAUN:** I fly DJI Phantom Quadcopters. My current favorite is the Phantom 2 Vision. It is stable, durable, and comes with the DJI FC200 camera attached. The camera is controllable with a smartphone on the ground. Not only can I see on my phone exactly what the camera sees, but I can adjust the exposure, color temperature, switch from JPEG to DNG (Raw), change my ISO, and point the camera in virtually any direction. Adobe software is my other tool. I generally begin in Adobe





## DRONE ORIGINS

Military historian Steven Zaloga, in *Unmanned Aerial Vehicles*, explained how drones got their name: "In 1935, U.S. Adm. William H. Standley saw a British demonstration of the Royal Navy's new remote-control aircraft for target practice, the DH 82B Queen Bee. Back stateside, Standley charged Commander Delmer Fahrney with developing something similar for the Navy. Fahrney adopted the name 'drone' to refer to these aircraft in homage to the Queen Bee."

minutes. Obviously, the camera sensors and lenses are limiting, but trumped by low weight and long flight time. We can fly a Canon EOS 5D on our heavy-lift copters, but suffer from short flight times. Thus, we fly the Lumix GH4 as an acceptable substitute.

**SB:** What recommendations would you make to someone considering buying a quadcopter?

**RANDY JAY BRAUN:** Take a class or learn from a friend. I teach classes in aerial photography in Hawaii, and I know many cities have frequent social meetups. Expect to spend about \$2000 for everything you will need to get started. That includes extra batteries, extra props, and a carrying case. Don't forget that you will need to process drone photos. Adobe Lightroom Version 5.4 or later comes with lens correction profiles for both the DJI FC200 camera and GoPro Hero cameras.

**JULIAN COHEN:** Learn to fly first. The best entry model would be something like a Blade Nano QX, available for about \$100. Although palm-sized and without a camera, it reacts and flies the same as a full-size quad. If you can fly it, you can fly anything and will not have to depend on GPS mode in the bigger quads. GPS is great for stabilized photography, but I believe it is better to be able to fly without it to have more control.

**ROMEO DURSCHER:** We recommend that anyone serious about aerial photography pick up the DJI Phantom 2 Vision+. For a single price you get a turnkey product that flies right out of the box—complete with three-axis gimbal, camera, and radio controller. As with anything technical, it's a learning experience. However, the Phantom is easy to learn and, with GPS technology, produces professional results. ■

Lightroom and occasionally move into Photoshop CC. The attached DJI cameras actually have DNG Raw and JPEG shooting options. Raw file processing is where the magic happens. Adobe engineers were quick to develop lens profiles for both the DJI FC200 camera and the GoPro Hero3. There is a simple one-button lens distortion correction feature both in Lightroom and Photoshop.

**JULIAN COHEN:** I use a DJI Phantom Vision. Its camera has 14 megapixels and an f/2.8 fisheye with a 140-degree field of view. The main advantage is the camera will shoot Raw, allowing plenty of processing power. One has to be realistic and not expect the small sensor to produce poster-size images. But for web use or a magazine double-page spread, it is eminently capable.

**ROMEO DURSCHER:** We fly a DJI Phantom 2 Vision+ that has its own proprietary camera and gimbal system. We also fly a Phantom 2 with a GoPro Hero3+. Our larger hex and octos fly a Zenmuse Z15 gimbal by DJI with a Panasonic Lumix

GH4 camera. The gimbal is optimized for the Olympus M.Zuiko 12mm f/2.0.

**SB:** What improvements, if any, would you recommend for quadcopters used in photography?

**RANDY JAY BRAUN:** I wish I had a choice of focal length. The small action cameras have a 140-degree field of view that is often too wide. I actually purchased a custom-built GoPro Hero3+ with a long lens from RageCams.com. Having a built-in zoom would be nice!

**JULIAN COHEN:** Longer-lasting batteries. DJI's Phantom 2 and Phantom Vision were the first with batteries allowing 20+ minutes of flight time. The ideal would be to be able to use a full-frame DSLR in a quad that can fly for an hour and is easily portable. That might sound a stretch, but I wouldn't be surprised to see it within a couple of years.

**ROMEO DURSCHER:** Improvements in battery technology will change everything, allowing us to carry heavier cameras and lenses for longer flights. The DJI Phantoms with the GoPro Hero3+ can fly approximately 22





Figure 1: This image illustrates exposure based on metering the sky.



clear day is to meter the northern sky, if possible, using Manual mode, setting the exposure for 0 to +1 EV depending on how dark or light I want the sky to render. Then, I will meter the snow to see how that compares relative to the guidelines noted above. Figure 1 is an excellent example illustrating this metering technique.

On an overcast day, I'll simply meter the snow or sky for +1 EV. Of course, you can always spot meter something neutrally toned, such as a gray rock or similar object, to set exposure and then let everything else be exposed relative to that. Remember to do this in Manual mode or else camera settings will change as you reframe your shot. If in doubt, bracket shots by one to two stops over and under your initial exposure. It's best to do this in one-stop (EV) increments. With experience, you'll become more confident setting your exposure, so that you'll need to bracket less. The final determination will of course be made by checking your histogram which you would expect to be skewed toward the right since the snow will be overexposed. It's always a good idea as well to have "Exposure Warning" set through your camera's custom functions—any overexposed areas in your LCD preview screen will blink—and while it's okay to have relatively small very bright areas blinking with overexposure, you sure don't want the entire snowfield or sky doing so. If it does, the fix is to simply increase shutter speed by one or more stops or EVs, or close down the aperture by the same amount, until the blinking area is within tolerable limits.

Exposure for wildlife will be discussed separately below. And don't forget flash when shooting in winter. It can be used as an effective tool to highlight foreground objects, provide catchlight, or eliminate undesirable shadows as seen in Figure 2.

# 10 Tips for Better Winter Photography

SURE IT'S COLD OUTSIDE BUT WINTER IS A GREAT TIME TO CAPTURE TRULY UNIQUE IMAGES OF WILDLIFE AND NATURE

BY RICK SHEREMETA

**T**HERE'S NO REASON to pack your photo gear away when the first snows of winter start to fly. Winter photography presents some of the most wonderful opportunities to capture stunning subject matter that is not available during other times of the year. With the ground enveloped in a blanket of white snow, even familiar surroundings will take on an entirely different perspective and serve as the background for new and exciting images. However, winter does present certain challenges that most photographers may never have to deal with during other seasons. This article will arm you with 10 tips to make your winter photo efforts more productive, as well as helping you stay warm and comfortable, so that you can better enjoy your winter shooting excursions.

## 1. SNOW CAN TRICK YOUR METER

A white snow-covered landscape will definitely influence your meter's exposure reading, regardless of the camera you're using. All camera metering systems are calibrated based upon a neutral tone equivalent to a value in the order of 18 percent gray. Therefore, if you rely solely on your camera's meter to set exposure, you may be sorely disappointed to find that your snowscapes are underexposed, appearing dull gray—while this might be

the mood you're trying to achieve, snow should normally appear white. With an understanding of how your meter works, it's a simple matter to compensate for the metered reading to obtain the proper exposure. I find that even in the shade or on an overcast day, a snowy scene will need to be overexposed with an exposure compensation of +1 EV. Bright sunlit scenes can require +2 EV for the snow. However, be very careful at going beyond to +3 compensation—at that point things may be blown out and all detail will be lost. My approach for a

## 2. FOCUS PROBLEMS

Overcast, foggy, or snowy days can pose problems for your autofocus system. With low-contrast conditions or when snow is falling autofocus may experience difficulty in obtaining focus—Figure 3 illustrates this point. As a result, the lens will chatter or flutter as it attempts to gain focus—no, there is nothing wrong with the lens, it's just that it can't find anything with enough contrast to lock on to. At other times, the lens will want to focus on the falling snow, leaving your subject unsharp or entirely out of focus.





Figure 2: I used flash here to open up shadow areas and add specular highlight to this young bobcat.

Under those types of conditions, it's best to switch from auto to manual focus. To assist in knowing when focus has been achieved, hold down the shutter button halfway, and once focus has been obtained, the focusing point(s) used in the viewfinder will light up to let you know that you're good to go.

### 3. WHAT SHUTTER SPEED TO USE

As in any creative photographic situation, this is highly subjective depending on the result you're trying to achieve and the conditions you're facing. On a calm day, it's obviously not so much a problem. However, when the wind is howling or it's snowing, the situation can be totally different—a conscientious decision then needs to be made as to how the scene will be rendered. Fast shutter speeds will stop any movement whereas slow shutter speeds will result in blurred motion. Falling snow is a good example of this—with a slow shutter speed, snowflakes will appear as streaks of white, whereas a fast shutter speed will render them as white dots. So what is fast and what is slow? While gently falling snow on a calm day may require as little as 1/125 sec to freeze motion, during blizzard conditions 1/350 sec will barely be enough—so if there's any question, it's advisable to bracket shots using various shutter speed/aperture combinations to find out what works best depending on conditions. Figure 4 shows this effect with falling snow.



Figure 3: This is a good example of a scene that can cause trouble for autofocus with heavy snowfall and low-contrast lighting. A fast shutter speed and manual focus will be helpful in situations like this to get the shot.

Photos © Rick Sheremeta

### 4. BATTERIES AND COLD WEATHER

There is no question that batteries lose power at low temperatures, and the colder it gets, the faster it occurs. While this applies to all batteries, some do better in low temperatures than others. Avoid alkaline batteries in the cold, as they fare very poorly. The best performers are primarily (i.e., non-rechargeable) lithium cells, followed by rechargeable lithium-ion, NiCd, and Ni-MH. They should all function satisfactorily down to 0°C (32°F) or below, though they will certainly have a lower capacity than they do at higher temperatures. The lithium-ion batteries in my Canon EOS 5D Mark II have repeatedly performed very well in the extreme cold of Yellowstone's winter. The good thing is that even though batteries become exhausted in a relatively short period, the colder they get they will regain their power once warmed back up. The best solution is to have several spare batteries out in the field to switch between your camera and a warm pocket—using a hand warmer in the pocket with the spare batteries will help them recover sooner.

### 5. MOISTURE AND COLD WEATHER

A major problem with cold weather photography is moisture. Very cold air is generally very dry, but air in a heated building or vehicle usually contains moisture. So the problem does not occur while outside, but when you bring an ice-cold camera back into a heated area any moisture present will condense onto

or inside your gear. For the same reason, this also holds true for placing an ice-cold camera under your coat to protect it: don't do it. The problem isn't so much the moisture you may see on the outside of your equipment, but moisture on internal electrical components. As we all know, electronics and moisture don't mix, so the best thing is to prevent it from happening in the first place.

The problem can be readily avoided by placing your camera gear into an airtight plastic bag such as a self-sealing freezer bag, or simply leaving it in your camera gear bag before you go indoors. Leave it inside the protective bag until everything reaches room temperature. However, if you should happen to get condensation on your camera gear, remove the batteries, and let it sit until all the moisture has evaporated. Unfortunately, this can take some time but the process may be hastened by gently warming your equipment using a hair dryer set on a low setting.

### 6. EQUIPMENT PROTECTION

Today's modern DSLRs and associated equipment should function just fine, for the most part, in winter's cold weather. However, plastic camera bodies and components may become brittle in extreme cold, so a little extra caution in handling is advised. Just as in summer when photographing in rainy conditions, it's imperative to keep wet snow off your gear—dry powdery snow shouldn't pose a problem at all and will simply fall off for the most part. To that end, a rain cover, umbrella, or even a heavy-duty plastic bag (although they can be stiff



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Figure 4: Even on a calm day, heavy snowfall requires a shutter speed of 1/250 sec to stop motion. Even at that speed, it's only just marginal.

and a little unwieldy) will work. Keeping the lens hood attached and pointing your camera down and/or away from prevailing wind direction until ready to shoot will lessen the likelihood that snow will accumulate on the front element of your lens.

If you should happen to get snow on your lens or camera, use a lens brush or something similar to remove it. Don't try to blow it off with your breath, as that will only add to the problem by adding more moisture. Sometimes a soft chamois or cotton towel can help if things are really wet, but again avoidance is the key.

## 7. FILTERS

My number one filter regardless of time of year is a polarizer. I use a polarizer to darken blue sky, add definition to clouds, and get rid of glare. The only caveat is that with a low sun angle in winter, it is easy to over-polarize, thus giving the sky an unnatural appearance. So you may want to go easy or take a few frames with varying amounts of polarization

to see exactly what works best. Figure 5 shows the effect to be gained with the use of a polarizer.

Graduated neutral density filters are quite useful when it becomes necessary to equalize variations in exposure between different parts of a scene such as the foreground, or the background and sky. I find that a three-stop (No. 8) graduated gray neutral density filter will work for most all situations that might be encountered.

Another filter, that many photographers use, is a warming filter such as the 81C. The complimentary yellowish color will neutralize the snow's bluish cast that can occur on sunny days or in the shade. With a digital camera, white balance set for "shade" will provide a similar effect, or you can simply handle it with post-capture adjustment, using your favorite software, in the digital darkroom.

Filters are typically of two types—those that screw directly onto the end of a lens or slide into a holder. The latter may be preferable for winter use when

you're trying to fumble around with heavy gloves.

## 8. WILDLIFE

Photographing wildlife in winter can pose even more problems for exposure. When capturing wildlife, the thing to remember is that as the main subject, having the correct exposure for them is the important thing: everything else can be compromised if necessary. When possible, I find that it's best to spot meter the animal, taking into consideration whether the animal is white, neutral toned, or dark, and setting exposure accordingly, i.e., +1 EV, 0 EV, or -1 EV exposure compensation respectively as starting points, adjusting as necessary after checking the histogram. Again, this will become more intuitive with experience. If you're not sure, simply bracket exposures and pick the one you like best. When photographing animals, focusing on the eye is paramount. Catching that instant of specular highlight will make the image stand out even further as shown in Figure 6.



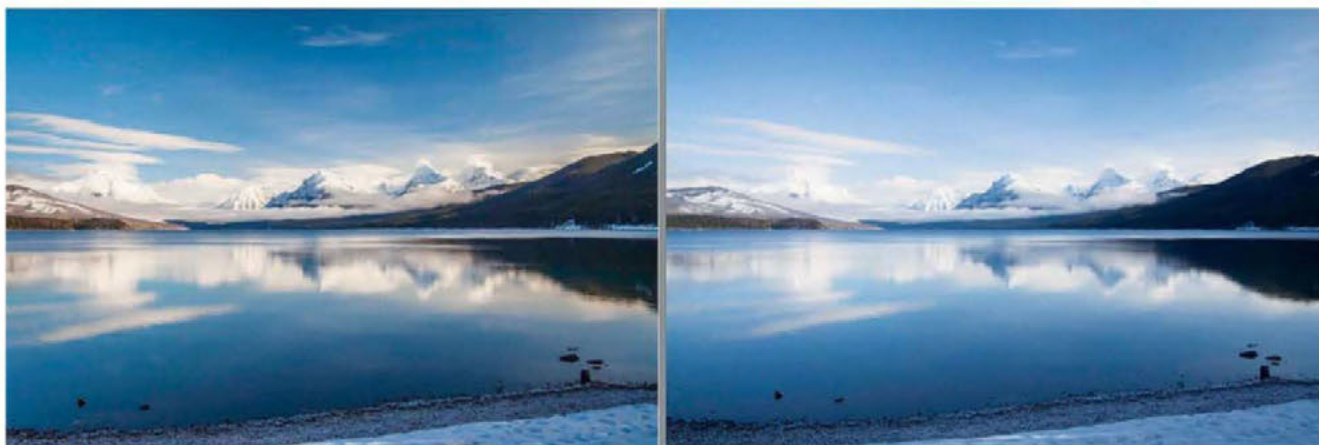


Figure 5: Winter scene at Glacier National Park's Lake McDonald. Image on left was taken with a polarizer, image on right without.

Winter is a very harsh and critical time for wildlife where their ability to conserve precious energy can make a difference in their very survival. It is therefore vitally important that photographers use good judgment and ethical practices so as not to cause wildlife any undue stress that could put them in jeopardy. If an animal exhibits any sign of stress or stops its normal activity on your approach, then you are too close. Maintaining a respectful distance and not approaching wildlife through the use of telephoto lenses will help avoid putting the animal in a “fight or flight” situation, and go a long way toward aiding in their survival.

Note that all wildlife shots don't need to be close-up portraits. It's often more interesting to take wide-angle shots placing the animal in its wintry environment.

## 9. TRIPOD

A good sturdy tripod is an absolute must to ensure sharp images. I prefer lightweight tripods, so carbon fiber is my tripod material of choice. Although generally more costly than its metallic counterparts, carbon fiber is a little more user-friendly than metal, especially against bare skin in cold weather environments.

## 10. PERSONAL PROTECTION

One of the most important considerations to having an enjoyable and productive outdoor winter experience is to be properly attired. You



Figure 6: Cow elk in Yellowstone. I exposed the scene for the animal and focused on the eye, waiting until the animal turned before pressing the shutter release to catch the specular highlight.

can have the best equipment and know all the tips and tricks; however, if you're cold and miserable, you certainly won't enjoy yourself and your first experience may likely be your last.

Garments that are breathable and can wick moisture away from your body, such as those made from wool or synthetic fabrics like polyester, are recommended. Cotton should be left at home in winter. Outer garments should be waterproof as well as breathable.

Another factor to consider is that it's always best to dress with several lightweight layers rather than a single heavy layer. In this manner, it's easy to add or remove layers based on your activity level. The key is to avoid becoming overheated and sweaty, which will eventually lead to becoming chilled.

Hand protection provides yet another

unique challenge for photographers since you need to be able to operate tiny camera controls without freezing your fingers. Depending on how cold it is, I may use lightweight fleece glove liners alone or under glomitts (fingerless gloves with attached flaps that can be pulled over fingers and thumbs, transforming them into mittens). When it's really cold, I'll also use a waterproof shell mitt as an outer layer or just heavier fleece gloves.

Standing on snow or frozen ground for any period of time can quickly lead to cold feet. Any type of pad, such as an old doormat, will go a long way toward keeping your feet from freezing. ■

*For more on Rick Sheremeta's photography and his workshops, visit his website at [www.alpenglowproductions.com](http://www.alpenglowproductions.com).*



#1: Canon EOS 5D Mark III,  
24-70mm lens, f/4.5, 1/200 sec  
shutter speed, 6700°K color  
temperature, ISO 100.



# Use Snow as a Reflector for Portraits

HOW TO SHOOT WARM-LOOKING WINTER PORTRAITS  
OUTDOORS WITH NATURAL LIGHTING

BY CHUCK GLOMAN

**A**S A CHILD, I clearly remember my father taking Kodachrome images of my sister and I in the snow. I always associated childhood winter 35mm slides with the blue cast they possessed. Not understanding color temperature, I assumed photos were always blue because it was cold outside. Summer images were understandably warmer looking.

Now that I know we have control over the color temperature, we can utilize all of the snow that is lying around from December to March in snow regions to take our own portraits. Colder weather portraits can still have warmth if you do control the color temperature and use it to your advantage. In fact, your winter images may look a lot better because you have nature's natural reflector handy—snow. In this article, I would like to look at several instances where the soft, reflective quality of snow will enhance your images.

## EVEN ILLUMINATION

My model, Paige, enjoys snowboarding when enough of the white stuff blankets the ground. Her light skin tone, blonde hair, and white jacket didn't really present that much of a problem with contrasting with the snow. For the first example (#1), an overcast sky didn't really necessitate Paige standing under a tree to provide even lighting. With no other source of lighting except the snow being the reflector, she had even illumination on her face.

Color temperature tends to be slightly higher with snow on the ground



#2: Canon EOS 5D Mark III, 24-70mm lens, f/4.5, 1/200 sec shutter speed, 6700°K color temperature, ISO 100.

Photos © Chuck Gloman



and more toward the blue end of the spectrum, so I color balanced off the snow which brought my temperature in at 6700°K. Notice that the camera left side of her face is slightly brighter—snow shouldn't create an even, flat look to the lighting. Opening up the iris slightly and allowing the reflective quality of the snow to act as an additional source of illumination resulted in a pleasing image of Paige.

We cheated slightly in the next image (#2) in that we placed a reflector just out of camera range on the left to add a little fill to Paige. Under the tree, the ambient light from the snow was not reaching her face, so a gold reflector added the needed warmth in color temperature. I still prefer to allow the background to overexpose slightly, which resulted in a more pleasing foreground image.

### EXPOSE FOR THE FACE

In the third example of Paige (#3), I moved her out into the sun. With her hair being backlit by the sun, a gold reflector adding a little ambient fill light to her face, we had a pleasant snow portrait. Again, allowing the background to be slightly overexposed pulls your eye into the subject who will now be properly exposed. In the last two examples, the warm reflector changed the color temperature on her face, allowing it to have a warmer cast, but I still determined the overall temperature from the surrounding snow. If a reading was taken from her face, the rest of the image would have a different hue—not something I was after.

Kaci has dark hair as well as a darker



#3: Canon EOS 5D Mark III, 24-70mm lens, f/4.5, 1/200 sec shutter speed, 7800°K color temperature, ISO 100.



#4: Nikon D4, 24-70mm lens, f/7.1, 1/60 sec shutter speed, 7000°K color temperature, ISO 125.



#5: Nikon D4, 24-70mm lens, f/7.1, 1/60 sec shutter speed, 7000°K color temperature, ISO 125.



#6: Nikon D4, 24-70mm lens, f/7.1, 1/60 sec shutter speed, 6500°K color temperature, ISO 125.



#7: Canon EOS 5D Mark III, 24-70mm lens, f/5.6, 1/200 sec shutter speed, 6500°K color temperature, ISO 500.

skin tone. Her dark gray coat was a nice contrast to the snow. Using a gold reflector to illuminate her face with needed fill light, note how it warmed her skin tone. The color balance was set at 7000°K, but the warm reflector lowered the color temperature on her face to 4000°K. I would not recommend going much warmer than this, but it does add a nice healthy glow (#4). A similar shot without using the reflector has a slightly cooler appearance (#5).

Under the shade of a tree, the gold reflector was utilized again to provide a

little warmth to Kaci's face. You can see that the sun is at its midday strength in the background, but the added orange color temperature makes her face contrast quite nicely with her white tights (#6).

Sarah, with similar hair color to Kaci's but with paler skin, also utilized the shade of a tree. Here the combination of the snow and the gold reflector just added a little warmth to her face—lowering the color temperature about 1500°K. Pleasing, but not too blue or orange (#7).





#8: Nikon D4, 24-70mm lens, f/5.0, 1/60 sec shutter speed, 5600°K color temperature, ISO 125.

### WARM IT UP

One of Erika's most striking features is her long hair. Sitting by a tree, and using added fill provided by a white reflector, the color temperature on her face remains the same as the rest of her environment (#8). Switching to a gold reflector warms just her face because her dark coat absorbed the reflected light (#9). The long shadow from the afternoon sun can also be seen.

A hat on Erika totally changes her look and lighting dynamic (#10). Here, too, the "snow light" is helped with a gold reflector. In total shade with a sunlit background, the warm fill again accentuates Erika's striking features (#11).

Kristin also chose the shade of an evergreen tree. A white reflector helped the snow provide the added fill illumination (#12). Out in direct sunlight, Kristin had a difficult time looking at the camera without squinting. With the harsh sunlight coming from camera right and striking her vibrant red hair, I used our reflector as a shade or flag. This prevented the sunlight from hitting her face, allowing the ambient fill light to be totally from the sun reflecting off the snow. Because all of the light was the same color temperature, I set the camera at 6200°K and the color looked natural (#13).



#9: Nikon D4, 24-70mm lens, f/5.6, 1/60 sec shutter speed, 5600°K color temperature, ISO 125.

### WINTER REFLECTIONS

All of the photographs seen here were created without any additional illumination from flash or LED lights. The sun provided the key illumination and either a gold or white reflector helped fill in the shadows.

All of the snow blanketing the ground reflected the ambient light from the sun and kept most of the light very flat and even. The only reason I used the reflectors was to eliminate the even, flat

lighting and up my lighting ratio slightly to a 2:1 ratio.

The next time you have a snowfall, get outdoors with your camera as this is the only time of year when you will have this type of lighting—only without the blue cast. ■

*Chuck Gloman is an associate professor and chair of the TV/Film department at DeSales University. He may be reached via e-mail at [chuck.gloman@desales.edu](mailto:chuck.gloman@desales.edu).*





#10: Nikon D4, 24-70mm lens, f/5.6, 1/60 sec shutter speed, 5600°K color temperature, ISO 125.



#11: Nikon D4, 24-70mm lens, f/5.6, 1/60 sec shutter speed, 6600°K color temperature, ISO 125.



#12: Nikon D4, 24-70mm lens, f/6.3, 1/125 sec shutter speed, 6500°K color temperature, ISO 125.



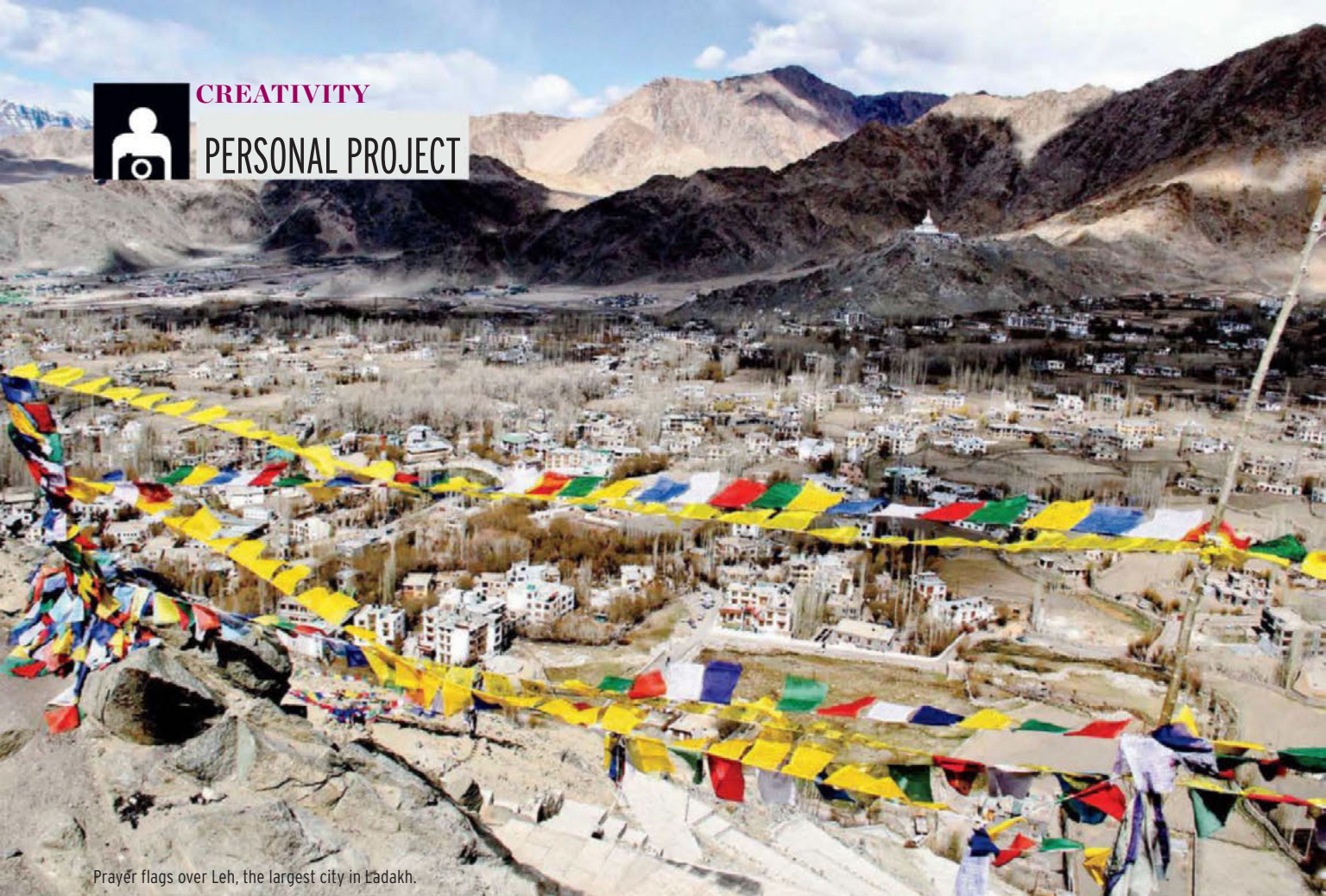
#13: Nikon D4, 24-70mm lens, f/6.3, 1/60 sec shutter speed, 6200°K color temperature, ISO 125.





CREATIVITY

PERSONAL PROJECT



Prayer flags over Leh, the largest city in Ladakh.

Photos © Daryl Hawk

# Capturing a Kingdom

DARYL HAWK'S AMAZING THREE-WEEK, 3200-MILE JOURNEY PHOTOGRAPHING THE LADAKH REGION OF INDIA

BY BARRY TANENBAUM

**N**OT TOO LONG ago we received these notes from photographer Daryl Hawk about his April, 2014, journey across the kingdom of Ladakh:

"Traversed the entire region from the Pakistan border in the west to the Tibetan border in the east...crossed the Khardung pass at 18,380 feet on the highest motorable road in the world...lived with both nomads and residents...explored 25 ancient monasteries and fortresses...tracked snow leopards, discovered petroglyphs and sacred lakes...had a meeting and interview with the King of Ladakh."

All of the above, and much more, made Hawk's three-week, 3200-mile journey "the most amazing travel experience I have ever had."

For 30 years, Daryl Hawk has regularly paused his portrait, corporate, and advertising photography business



A statue of Padmasambhava (popularly known as Guru Rinpoche), the founder of Tibetan Buddhism, in the Hemis monastery.



in order to pursue his passion for documenting the landscape, life, and culture of people living in some of the most remote parts of the world. “I’m very attracted to areas most people have never seen,” Hawk says. “Their remoteness adds to the intensity of the experience and the level of discovery and adventure. If I’m not pushing and challenging myself and not getting an adrenaline rush, it’s just not satisfying. Everything I invest in these journeys—time, energy, resources—has to pay off in challenge and accomplishment.”

Ladakh had all the elements. “There was the challenge of the terrain, and then the photographic possibilities of the beautiful light and color along the way. There were the great monasteries, and the fact that Ladakh is the location of the last remaining Buddhist cultures. Seeing and documenting something that’s now becoming increasingly rare, that’s reason enough.”

## LAND OF HIGH PASSES

The adventure began with research, preparation, and planning. When the name of the area through which you’ll be traveling translates as “land of high passes,” the first decision is choosing the time of year to travel. Pick the wrong time and you’ll be snowed in, or out. “And I wanted to be there when few other travelers would be,” Hawk adds. “The travel season there is May to October, so I planned for April.”

Though he’s definitely a loner when it comes to hiking, trekking, exploring, and photographing, Hawk knew some concessions had to be made. “Most important for success in really remote places is a good driver and a translator/guide,” he says. To find



Arranging a camel ride in the Nubra Valley, to the north of Ladakh.



A monk pours tea during early morning prayer at Thiksey monastery, east of Leh.



◀ The Shanti Stupa, on a hilltop in Chanspa, outside of Leh, holds the enshrined relics of Buddha, placed there by the 14th, and current, Dalai Lama.

them he contacted Overland Escape, an adventure travel company that specializes in taking photographers and filmmakers through Ladakh.

His driver and guide provided more than transport and translation. “Sometimes they knew of places to stay overnight along the route,” Hawk says, “but on the traverse of the remote areas, it was often hit or miss for accommodations. Sometimes a guesthouse, other times we’re living with remote tribes in their homes. At one location it went down to 20 below zero—no electricity, and just a coal stove for the room.”





His guide/translator was also important for an imaging aspect of the trip. "I brought along a camcorder to shoot video for a possible television show about the journey," Hawk says, "and my guide was instrumental in filming me in various locations."

Hawk's research always includes the cultures of the people he'll meet along the way. He wants to know what he's likely to see and what he'll be able to explore. Equally important is the significance of what he'll see. He knows that the people he'll meet, even if he speaks their language only through a translator, will have more respect for him if he understands at least a part of their world.

"There are always goals along the way," Hawk says, "and research makes them more attainable. The more I know, the more likely people are going to be willing to help me, to take me to special areas and show me things. I want them to know that I'm not a tourist. I'm more than interested, I'm fascinated."

## MEETING THE KING

Hawk's one-hour meeting with the King of Ladakh, which took place at the palace in the city of Leh, came about with the help of the tour operator, but it wasn't a certainty until it actually happened. Hawk was prepared: "I had 10 questions for him about the history of his family and how they played a part in Ladakh. I wanted to find out about his role as a spiritual leader and his role in preserving the area's traditions and culture. I asked about his vision of the future in view of growth and construction I'd seen in the city. Will this place become Westernized? Lose its identity? It turns out he and the other leaders of Ladakh are putting together a plan for protecting and preserving the area. They're looking to balance the need for some change with the preservation of traditions."

One of Hawk's goals for his travels is, he says, to "see life up close, and look at the ordinary as extraordinary. And to shine a light, with my camera, on the last of the wild places and ancient, disappearing cultures."

"I want to make people aware of all this in the hope they'll get involved in maintaining the beauty of these places.



Ancient relics placed in canvas sacks at the Hemis monastery, the largest monastic institution in the Ladakh districts of Jammu and Kashmir.



Two members of the Drokpa tribe in the village of Dah, one of three small villages in the disputed territory between India and Pakistan. "Drokpa are physically, culturally, linguistically, and socially different from most inhabitants of Ladakh," Hawk says.



After the Ladakh traverse, Hawk had four days before heading home. "It was a chance for me to see more of India," he says, "so I got a flight to Rajasthan." One of the first things he photographed there was this elephant ride at the city palace in Jaipur, Rajasthan's capital.



## Traveling Light

Daryl Hawk believes in bringing only what's absolutely essential, and on this trip it was two Canon EOS 60D bodies, two EF-S 18-135mm f/3.5-5.6 IS zoom lenses, a Rokinon FE8M-C 8mm f/3.5 Fisheye, and a Sony CX240E HD Handycam. He carried no flash unit, preferring natural light for everything. His images were stored only on ten 16GB memory cards. Everything he brought fit in his well-worn Eastern Mountain Sports' Good Travel backpack. "It has a daypack that zips off and on," Hawk says. "That pack holds the camera gear, my passport, memory cards, and money. It never leaves my side." He wears a Weekender Traveler photo vest that holds a lens, maps, lens cleaner, filters, and, to take essential travel notes, a small tape recorder plus a pad and pencils.



A monk spins prayer wheels outside the Alchi monastery in Alchi village in Leh. The prayer wheels are said to bring the faithful closer to realizing their enlightenment.



The Taj Mahal in Agra, India. A white marble mausoleum ordered by emperor Shah Jahan in memory of his third wife, it took 21 years to build.

I want to show what they look like, and try to convince people of the need and importance of preserving and protecting them. I believe I can best do this by showing and sharing my work."

And with his collection of photos from his trek across Ladakh, Hawk has done just that. ■

*You can see numerous images from Daryl Hawk's various travels at his website: [www.darylhawk.com](http://www.darylhawk.com).*



Roadways photographed from the Khardung pass.



In the middle of man-made Sagar Lake is Jaipur's Water Palace.





CREATIVITY

PHOTO SHOW REVIEW

# Gordon Parks: Back to Fort Scott

## NEW EXHIBITION SHOWCASES UNSEEN WORK OF AN AMERICAN MASTER

BY CHUCK DELANEY

**G**ORDON PARKS WAS born into a segregated environment that his photographs would help dismantle. In his storied career, he was the first African-American hired as a full-time photographer and writer by *Life* magazine, then in its heyday, and later the first major black director in Hollywood, best known for *Shaft*, his 1971 detective movie. Parks (1912-2006) was equally at home photographing fashion in New York and Paris or covering street gangs and life in the parts of black America that his white colleagues could not access.

Boston's Museum of Fine Arts assembled this exhibition, *Gordon Parks: Back to Fort Scott*, from a project Parks began in 1950 that was intended to reconnect him with his own past and record the lives of black Americans still living in a segregated world, years before the civil rights movement ignited. The show, organized by the Museum in partnership with the Gordon Parks Foundation, is on view from January 17 to September 13, 2015.

Gordon Roger Alexander Buchanan Parks was born to a poor farming family

► Untitled (Outside the Liberty Theater)

Gordon Parks (American, 1912-2006)

1950

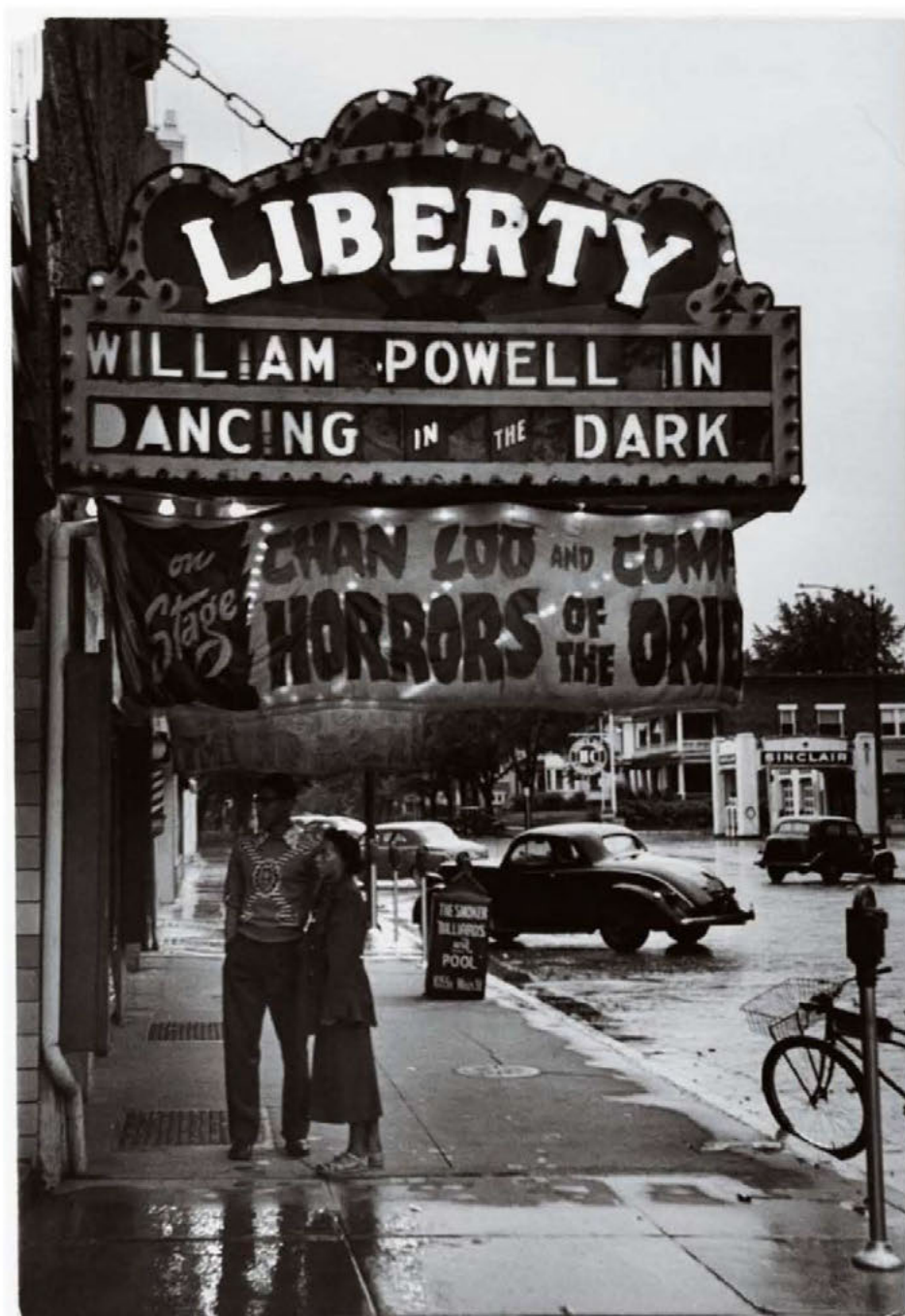
Photograph, gelatin silver print

Sophie M. Friedman Fund

© Gordon Parks

Photograph © Museum of Fine Arts, Boston

This photograph belongs to the collection of the Museum of Fine Arts, and it captured the interest of Karen Haas, the curator of the "Back to Fort Scott" show. Working with the prints and notes Parks had set aside after the magazine article was shelved, was "unlike anything I've ever done as a curator before," she recalled. "It caused me to revisit my understanding of American history." The young man looking at the movie poster with his girlfriend is also the subject of the pool hall photograph.







▲ **Untitled, Fort Scott, Kansas**  
Gordon Parks (American, 1912-2006)  
1950  
Photograph, gelatin silver print  
Photograph by Gordon Parks. Courtesy and  
© The Gordon Parks Foundation  
Courtesy Museum of Fine Arts, Boston



▲ **Husband and Wife, Sunday Morning, Detroit, Michigan**  
Gordon Parks (American, 1912-2006)  
1950  
Photograph, gelatin silver print  
Photograph by Gordon Parks. Courtesy and © The  
Gordon Parks Foundation  
Courtesy Museum of Fine Arts, Boston

The tight framing of this formal portrait adds to its impact. The couple are clearly decked out in their Sunday best. The hymnal in the man's right hand suggests they're either coming or going to church. The background gives the image depth and also provides context, suggesting pleasant surroundings. The tree trunk between them and the figures in the background don't distract from the direct way the subjects look into the camera.



▲ **Tenement Dwellers, Chicago, Illinois**  
Gordon Parks (American, 1912-2006)  
1950  
Photograph, gelatin silver print  
Photograph by Gordon Parks. Courtesy and © The Gordon Parks Foundation  
Courtesy Museum of Fine Arts, Boston

Parks creates depth in this dramatic available light portrait by positioning himself to allow the bottom of the bed to cut across the body of the man lying on it. A sense of isolation permeates the image, the man withdrawn into his own thoughts while the woman gazes out a window. The deep shadows make this a very somber photograph.

in Fort Scott, Kansas, a small town 90 miles south of Kansas City. The last of 15 children, he was sent to live with relatives in St. Paul, Minnesota, after his mother's death. Just 14, he quickly found himself completely on his own after a falling-out with his kin. For a decade he lived by his wits, working a range of different jobs in the Minneapolis area and Chicago.

Parks discovered photography in his mid-twenties, intrigued by a magazine article about migrant farmers that featured the work of the legendary photographers of the Farm Security Administration (FSA). While working as a waiter on the North Coast Limited, a train that ran between Chicago and Seattle, he bought his first camera in a Seattle pawnshop. His talent was apparent from the start. Parks has written of his life both in fiction and memoir, and some of his early photographic adventures may have

been burnished in the retelling. But there is no dispute that his skill and potential were quickly recognized by professionals, leading to an apprenticeship with Roy Stryker at the FSA, and, after relocating to New York City, an invitation to photograph women's fashion from Alexander Liberman, the legendary art director of *Vogue*.

## BACK TO HIS ROOTS

On assignment for *Life*, Parks returned to Fort Scott to look up his 11 classmates from the segregated grade school he had attended and revisit the childhood of poverty he had abruptly left behind. In his own words, he had always had "a stubborn need to be somebody." Now in his late thirties, he was on his way.

While *Life* later ran powerful photo essays on segregation taken by Parks, the Fort Scott piece he envisioned was never published in the magazine. Scheduled to run two different times, the story fell victim to breaking news of the Korean War that took up the allocated space. The prints and negatives that Parks made for the project were set aside, and disappeared from view for nearly 60 years, as Parks

◀ **Mrs. Jefferson, Fort Scott, Kansas**  
Gordon Parks (American, 1912-2006)  
1950  
Photograph, gelatin silver print  
Photograph by Gordon Parks. Courtesy and © The  
Gordon Parks Foundation  
Courtesy Museum of Fine Arts, Boston





## CREATIVITY

### PHOTO SHOW REVIEW

► Untitled, St. Louis, Missouri  
Gordon Parks (American, 1912–2006)  
1950

Photograph, gelatin silver print  
Photograph by Gordon Parks. Courtesy and © The  
Gordon Parks Foundation  
Courtesy Museum of Fine Arts, Boston

A father sitting on a bench supporting his daughter as she reads a magazine creates a tableau of mid-20th century life that resembles the kind of tender scene one might encounter in the work of American illustrator Norman Rockwell. She's lost in her reading, legs resting over the side of the bench, secure in her father's lap. The father may be listening to her as she reads aloud. The tight crop, cutting through his right hand and her feet, deny the viewer some bits of information, but it provides added emphasis to the pair and the moment they're sharing.

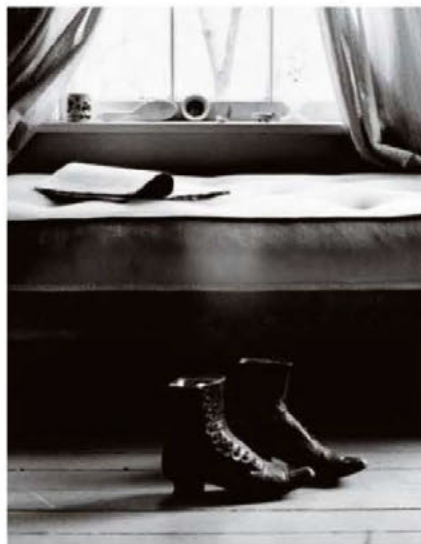


headed off for a two-year stint in Paris.

The photographs in the show highlight the skill set that made Parks a successful photographer—strong posing skills, an easy rapport with his subjects, a sense of place, and beautiful work in available light. An image of a young man sizing up a shot in a pool hall is exquisitely framed, the foreground lit by a single light over the pool table while the print also reveals detail outside the hall's window. A man leaning against that window provides added depth. He also made portraits of his remaining relatives and neighbors in Fort Hood. A portrait of Mrs. Jefferson shows her in profile, seated in a chair on her porch, a walking stick in her right hand. One can almost hear Parks talking softly to her as he made this photograph.

Parks discovered that most of his classmates had joined the post-war migration of black Americans seeking work in the cities further north, so he traveled to Detroit and Chicago to find his old schoolmates and record their new lives—some more successful than others. As with the work that Parks did publish in *Life*, these pictures were intended to show the nobility and values of a community that was otherwise invisible to white America at that time. The images are as captivating today as they would have been had they been seen back in the 1950s.

For the audience who can't get to Boston for the show, a catalog will be published by Steidl, the German publishing house that has produced several catalogs of the work of Gordon Parks. YouTube has a wealth of material

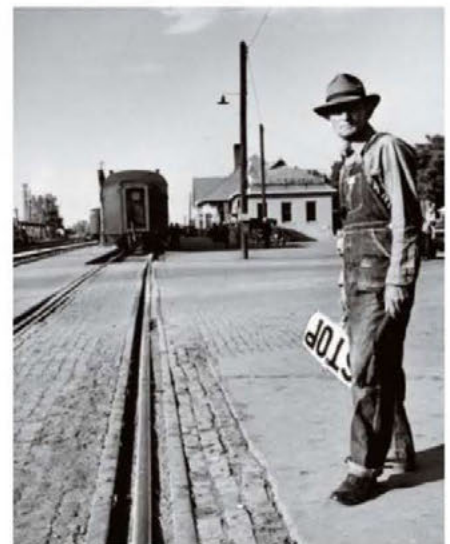


▲ Shoes, Fort Scott, Kansas  
Gordon Parks (American, 1912–2006)  
1950

Photograph, gelatin silver print  
Photograph by Gordon Parks. Courtesy and © The  
Gordon Parks Foundation  
Courtesy Museum of Fine Arts, Boston

There's a strong sense of nostalgia in this still life that shows the sense of composition and balance that Parks brought to his fashion work. The high-button shoes lead us into the image, the open magazine on the sofa and the objects on the window sill are all part of the story. The way the sofa splits the image and the placement of the shoes in the center of the foreground violate the so-called "rules" of composition. Did Parks come upon this scene, or did he style it to his liking?

about him as well. A search of "Gordon Parks first job" will bring up a five-minute interview clip where an elderly Parks recounts how he fast-talked his way into and through his first fashion job, which went horribly wrong. There's



▲ Untitled, Fort Scott, Kansas  
Gordon Parks (American, 1912–2006)  
1950

Photograph, gelatin silver print  
Photograph by Gordon Parks. Courtesy and © The  
Gordon Parks Foundation  
Courtesy Museum of Fine Arts, Boston

Fort Scott, a town of about 10,000, is 90 miles due south of Kansas City, and sits on the eastern edge of the vast Osage Plains. It was named after the original Army garrison built there in the 1840s to guard the frontier. Parks might have intended this image as an establishing shot for his story. Placing the camera at waist level elevates the signalman and his role patrolling the railway's entrance to Fort Scott. This kind of portrait is suggestive of the work done by the FSA photographers.

a lesson to be learned in his brash confidence. A search of "Gordon Parks Shaft" brings up a studio session with Parks sitting in while Isaac Hayes and the Bar-Kays shape the theme song to the movie. ■



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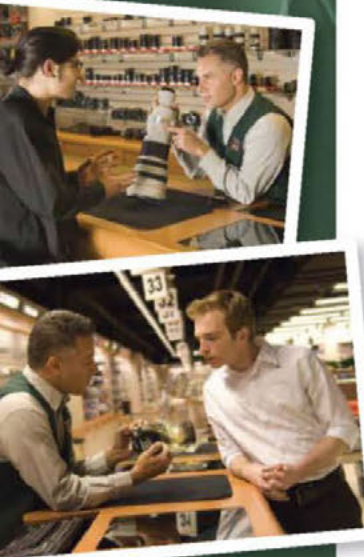


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17/2.8 (37e).....	299.00	60/2.8 Mac ED (46e).....	499.00
17/1.8 (46e).....	499.00	75/1.8 ED (58e).....	899.00
25/1.8 (46e).....	399.00	9-18/4.0-5.6 (52e).....	699.00
12-40/2.8 Pro ED (62e).....	999.00		
12-50/3.5-6.3 ED EZ (52e).....	499.00		
14-42/3.5-5.6 EZ ED (37e).....	349.00		
14-42/3.5-5.6 II R (37e).....	299.00		
14-150/4-5.6 (58e).....	599.00		
40-150/4.5-6.3 ED R (58e).....	199.00		
75-300/4.8-6.7 II ED (58e).....	549.00		

### ▶ PENTAX

#### AF Flash System

AF-360FGZ.....		AF-540FGZ II.....	
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#### DA Digital AF Lenses

15/4.0 ED AL HD Limited (49e).....			
14/2.8 ED IF (77e).....		35/2.4 AL (49e).....	
21/3.2 AL Limited (49e).....		40/2.8 Limited (49e).....	
35/2.8 Macro HD Limited (49e).....			
40/2.8 HD Limited (49e).....		560/5.6 ED AW (112e).....	
50/1.8 (52e).....		10-17/3.5-4.5 ED IF (77e).....	
55/1.4 SDM (58e).....		12-24/4 ED AL IF (77e).....	
70/2.4 HD Limited (49e).....		16-50/2.8 ED AL SDM (77e).....	
200/2.8 ED IF SDM.....		17-70/4.0 AL IF SDM (67e).....	
300/4.0 ED IF SDM (77e).....		18-55/3.5-5.6 AL WR (52e).....	
18-135/3.5-5.6 ED AL (IF) DC WR (62e).....			
18-270/3.5-6.3 ED SDM (62e).....			
20-40/2.8-4 HD Limited ED DC WR (55e).....			
50-135/2.8 ED SDM (67e).....		50-200/4.5-6.3 ED WR (52e).....	
55-300/4-5.8 HD ED WR (58e).....			
60-250/4.0 ED IF SDM (67e).....			

#### "FA" AF Lenses for 35mm & Digital SLRs

31/1.8 Limited.....		50/1.4 (49e).....	
35/2.4 AL (49e).....		50/2.8 Macro (52e).....	
43/1.9 Limited (49e).....		77/1.8 Limited (49e).....	
100/2.8 D FA WR Macro (49e).....			

### ▶ SONY

#### Flash System

HVL-F20M.....	149.99	HVL-F43M.....	398.00
HVL-F20S.....	149.99	HVL-F60M.....	548.00

#### E-Mount Mirrorless Lenses

16/2.8 (49e).....	248.00	35/1.8 OSS (49e).....	448.00
20/2.8 (49e).....	348.00	35/2.8 ZA (49e).....	798.00
24/1.8 (49e).....	1,098.00	50/1.8 OSS (49e).....	298.00
30/3.5 Mac (49e).....	278.00	55/1.8 ZA FE (49e).....	998.00
10-18/4 OSS (62e).....	848.00		
16-50/3.5-5.6 OSS (40.5e).....	348.00		
16-70/4 ZA OSS (55e).....	998.00		
18-55/3.5-5.6 (49e).....	298.00		
18-105/4 G OSS (72e).....	598.00		
18-200/3.5-6.3 (67e).....	898.00		
18-200/3.5-6.3 OSS (62e).....	848.00		
18-200/3.5-6.3 PZ OSS (67e).....	1,198.00		
24-70/4 ZA OSS (67e).....	1,198.00		
28-70/3.5-5.6 OSS (55e).....	498.00		
55-210/4.5-6.3 OSS (49e).....	348.00		
70-200/4.0 G OSS (72e).....	1,498.00		

#### Digital Lenses

16/2.8 Fish-eye.....	998.00	20/2.8 (72e).....	748.00
24/2 Carl Zeiss (72e).....			1,398.00
30/2.8 DT Macro (49e).....			198.00
35/1.4 G (55e).....	1,498.00	50/1.8 DT (49e).....	168.00
35/1.8 DT (55e).....	2,218.00	50/1.4 (55e).....	448.00
50/1.4 Carl Zeiss ZA (72e).....			1,498.00
50/2.8 Mac (55e).....	598.00	85/2.8 (55e).....	298.00
85/1.4 Carl Zeiss (72e).....			1,698.00
100/2.8 Macro (55e).....			798.00
135/1.8 Carl Zeiss (77e).....			1,798.00
135/2.8 STF (72e).....			1,398.00
300/2.8 G APO II (42eR).....			7,498.99
500/4 G (42eR).....			12,998.00
11-18/4.5-5.6 DT (77e).....			798.00
16-35/2.8 ZA SSM (77e).....			1,998.00
16-50/2.8 DT (40.5e).....			798.00
16-80/3.5-4.5 DT (62e).....			998.00
16-105/3.5-5.6 DT (62e).....			698.00
18-55/3.5-5.6 DT SAM II (55e).....			218.00
18-135/3.5-6.3 (62e).....			498.00
18-250/3.5-6.3 DT (62e).....			648.00
24-70/2.8 Carl Zeiss (77e).....			1,998.00
28-75/2.8 (67e).....			898.00
55-200/4.0-5.6 DT (55e).....			198.00
55-300/4.5-5.6 DT (62e).....			298.00
70-200/2.8 G SSM II (77e).....			2,998.00
70-300/4.5-5.6 G2.....			998.00
70-400/4.5-6.3.....			2,198.00
1.4x Teleconverter.....	548.00	2x Teleconverter.....	548.00



## Panasonic Lumix DMC-GM1 Mirrorless System Camera

- Venus Engine Image Processor • Micro 4/3 System
- 3.0" Touchscreen LCD • SDHC/SDXC Card Slot
- Full HD 1080i AVCHD Video at 60 fps • ISO 25600
- 5 fps Continuous Shooting • Built-In Wireless
- Highly Compact Magnesium Alloy Body
- Available in Black or Orange



with 12-32mm Lens #PADMCGM1\*

## Panasonic Lumix DMC-GX7 Mirrorless System Camera

- Micro 4/3 System • 3.0" Tilting LCD Touchscreen
- SDHC/SDXC Card Slot • 90° Tilting EVF
- Full HD 1080p AVCHD Video at 60 fps
- Focus Peaking and Magnification Windows
- Built-In Wireless and NFC Connectivity
- Available in Black or Silver



with 14-42mm II Lens #PADMCGX7K\*

## Panasonic Lumix DMC-GH4 4K Mirrorless System Camera

- DCI 4K 4096x2160 at 24p • Full HD up to 60p
- UHD 4K 3840x2160 at 30p/24p • 3.0" LCD
- Live View Finder • High-Speed 49-Point AF
- 4:2:2 8-Bit or 10-Bit HDMI Output
- Support for 59.94p, 23.98p, 50p, & 24p
- Magnesium Alloy, Weather-Sealed Body



Body Only #PADMCGH4\*

## PENTAX K-3 DSLR Camera

- PRIME III Image Processor • 3.2" LCD
- Pentax K Lens Mount • Dual SD Card Slots
- In-Camera Shake Reduction Stabilization
- Full HD 1080i/p Video Recording
- Continuous Shooting up to 8.3 fps
- Weather-Sealed Magnesium Alloy Body



Body Only #PEK3

## SONY Alpha A6000 Mirrorless System Camera

- 3.0" Tilting LCD • Uses Sony E-mount Lenses
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo Card Slot • Up to 11 fps Shooting • ISO 25600
- Full HD 1080i/p AVCHD Video at 24/60 fps
- Built-In Wi-Fi Connectivity with NFC
- Available in Black or Silver



Kit with 16-50mm OSS Lens #SOA6000\*

## SONY Alpha A7 Mirrorless System Camera

- Full Frame Exmor CMOS Sensor • 3.0" Tilttable LCD
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo Card Slot • Uses Sony E-mount Lenses
- Built-In Wi-Fi and NFC • Direct Access Interface
- Full 1080/60p with Uncompressed Output



Body Only #SOA7B

Kit with 28-70mm Lens #SOA7KB

## SONY Alpha SLT-A58 DSLR Camera

- 2.7" Tilting LCD • Uses Sony Alpha mount Lenses
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo Card Slot • Full HD 1080i/p Video at 60 or 24fps
- 5fps Full Resolution Continuous Shooting
- SteadyShot INSIDE Image Stabilization
- ISO 100-16000 with Noise Reduction



DT 18-55mm SAM II Lens #SOLTA58K

## SONY a77 II DSLR Camera

- 3.0" 3-Way Tilting LCD • 12fps Shooting
- Uses Sony Alpha mount Lenses
- Full HD 1080p Video Recording at 60 fps
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo, XC-HG Duo Card Slot • ISO 25600
- Built-In Wi-Fi Connectivity with NFC



Body Only #SOA772

## LENSES AND FLASHES for DSLR & Mirrorless Cameras

### TAMRON

Six-Year Warranty

Di for both digital and film SLR cameras  
Di-II for Digital SLRs Only Di-III for mirror-less cameras Only Rebates Expire 12-31-14

	C = Canon	N = Nikon	P = Pentax	SA = Sony Alpha	SE = Sony E Mount
** Price After Rebate	SKU #	Avail. for	Rebate	Price	
Di-II 60mm f/2.0 LD IF Macro (55ø)	#TA602DI*	C, N, SA	—	524.00	
Di 90mm f/2.8 Macro (55ø)	#TA9028M*	C, N, P, SA	—	499.00	
Di 90mm f/2.8 SP Macro VC USD (58ø)	#TA9028VC*	C, N	—	749.00	
Di 180mm f/3.5 LD IF Macro (72ø)	#TA18035*	C, N, SA	—	739.00	
Di-II 10-24/3.5-4.5 (77ø)	#TA102435*	C, N, P, SA	—	499.00	
Di-II 16-300/3.5-6.3 VC PZD (67ø)	#TA1630035DI*	C, N, SA	\$30	599.00**	
Di-II 17-50/2.8 XR LD IF Asph (67ø)	#TA175028*	C, N, P, SA	—	499.00	
Di-II 17-50/2.8 XR VC LD IF Asph. (67ø)	#TA175028*Q	C, N	—	649.00	
Di-II 18-200/3.5-6.3 (62ø)	#TA1820035*	C, N, P, SA	—	199.00	
Di-II 18-200/3.5-6.3 VC (62ø)	#TA1820035S*	SE Black or Silver	—	739.00	
Di-II 18-270/3.5-6.3 VC PZD (62ø)	#TA18270*	C, N, SA	\$50	399.00**	
Di 24-70/2.8 VC USD (82ø)	#TA247028*	C, N, SA	\$100	1,199.00**	
Di 28-75/2.8 XR (67ø)	#TA287528*	C, N, P, SA	—	499.00	
Di 28-300/3.5-6.3 XR LD (62ø)	#TA2830035XD*	C, P, SA	—	419.00	
Di 28-300/3.5-6.3 VC PZD (67ø)	#TA2830035DI*	C, N, SA	—	849.00	
Di 70-200/2.8 LD IF Macro (77ø)	#TA7020028M*	C, N, P, SA	—	769.00	
Di 70-200/2.8 SP VC USD (77ø)	#TA7020028*	C, N, SA	\$100	1,399.00**	
Di 70-300/4.5-6.3 LD Macro (62ø)	#TA70300M*	C, N, P, SA	—	199.00	
Di 70-300/4.5-6.3 VC USD (62ø)	#TA70300*	C, N, SA	—	449.00	
Di 150-600/5.6-6.3 VC USD (95ø)	#TA150600S*	C, N, SA	—	1069.00	
1.4x SP AF Pro Teleconverter	#TA14XP*	C, N	—	224.00	
2x SP AF Pro Teleconverter	#TA2XP*	C, N	—	254.00	

### ZEISS Touit Mirrorless Lenses

These fully-compatible lenses with autofocus expand the capabilities of both the Sony NEX and Fujifilm X camera systems with outstanding optical quality.

	Fujifilm X	Sony NEX	Price
12mm f/2.8 (67ø)	#ZET2812X	#ZET2812E	999.00
32mm f/1.8 (52ø)	#ZET1832X	#ZET1832E	720.00
50mm f/2.8M (52ø)	#ZET5028MX	#ZET5028ME	999.00

### Tokina

DX – for Digital SLRs Only FX – Designed for full frame DSLRs

	Canon EOS	Nikon AF	Price
FX 100mm f/2.8 Pro D Macro (52ø)	#T010028PCAF	#T010028PNAF	399.00
DX 10-17mm f/3.5-4.5 ATX Fisheye	#T0101735CAF	#T0101735NAF	599.00
DX 11-16mm f/2.8 Pro (77ø)	#T0111628PDXC	#T0111628PDXN	449.00
DX 11-16mm f/2.8 Pro II (77ø)	#T0111628PCII	#T0111628PNI	525.00
DX 12-28mm f/4.0 Pro (77ø)	#T012284DXC	#T012284DXN	489.00
FX 16-28mm f/2.8 Pro	#T01628FXC	#T01628FXN	639.00
FX 17-35mm f/4 Pro (82ø)	#T01735F4FXC	#T01735F4FXN	499.00

### SIGMA

\*\* Price After Rebate Rebates Expire 12-31-14

DC – for Digital SLRs Only DG – Optimized for Digital SLRs DN – Designed for Mirrorless Cameras.

H – HSM Model with Canon, Nikon, Sigma	Mount	SKU #	Rebate	Price	C = Canon	MFT = Micro 4/3	N = Nikon	O = Olympus	P = Pentax	SI = Sigma	SA = Sony Alpha	SE = Sony E
DC 4.5/2.8 EX Circular Fisheye HSM R	C, N, P, SI, SA	#SI4528EX*	—	899.00	DC	10-20/3.5 EX HSM (82ø)	C, N, P, SI, SA	#SI102035*	—	649.00		
DC 8/3.5 EX Circular Fisheye R	C, N, P, SI, SA	#SI835*	—	899.00	DG	12-24/4.5-5.6 EX Asph. HSM II	C, N, P, SI, SA	#SI122445*	\$75	874.00**		
DC 10/2.8 EX Fisheye HSM R	C, N, P, SI, SA	#SI1028EXDC*	—	699.00	DC	17-50/2.8 EX OS HSM (77ø)	C, N, P, SI	#SI175028*	\$150	519.00**		
DG 15/2.8 EX Diagonal Fisheye R	C, N, P, SI, SA	#SI1528DG*	—	609.00	DC	17-70/2.8-4.0 OS Mac HSM TSC (72ø)	C, N, P, SI, SA	#SI177028*	—	499.00		
DN 19/2.8 (46ø) Black or Silver	MFT, SE	#SI1928DN*	—	199.00	DC	18-35/1.8 HSM (72ø)	C, N, P, SI, SA	#SI183518DC*	—	799.00		
DG 20/1.8 EX DF RF Aspherical (82ø)	C, N, SI, SA	#SI2018*	—	629.00	DC	18-200/3.5-6.3 OS II HSM (72ø)	C, N, P, SI, SA	#SI1820035*	—	499.00		
DG 24/1.8 EX DF Asph. Macro (77ø)	C, N, P, SI, SA	#SI2418M*	—	549.00	DC	18-200/3.5-6.3 OS Macro HSM (62ø)	C, N, P, SI, SA	#SI1820035D*	—	399.00		
DG 28/1.8 EX DF Asph. Macro (77ø)	C, P, SI, SA	#SI2818M*	—	449.00	DC	18-250/3.5-6.3 OS Macro HSM (62ø)	C, N, P, SI, SA	#SI1825035M*	\$200	349.00**		
DN 30/2.8 (46ø) Black or Silver	MFT, SE	#SI3028DN*	—	199.00	DG	24-70/2.8 EX IF HSM (82ø)	C, N, P, SI, SA	#SI247028*	—	899.00		
DC 30/1.4 HSM (62ø)	C, N, P, SI, SA	#SI3014DCHSM*	—	499.00	DG	24-105/4.0 OS HSM (82ø)	C, N, SI, SA	#SI24105*	—	899.00		
DG 35/1.4 HSM (67ø)	C, N, P, SI, SA	#SI3514*	—	899.00	DC	50-150/2.8 EX APO OS HSM (77ø)	N	#SI5015028*	—	899.00		
DG 50/1.4 EX HSM (77ø) R	C, N, SI, SA	#SI5014*	\$100	399.00**	DC	50-500/4.5-6.3 APO OS HSM (95ø)	C, N, P, SI, SA	#SI505004563*	\$150	1,509.00**		
DG 50/1.4 HSM (77ø) R	C, N, SI, SA	#SI5014A*	—	949.00	DG	70-200/2.8 EX APO OS HSM (77ø)	C, N, P, SI, SA	#SI7020028*	\$200	1,199.00**		
DG 50/2.8 EX Macro (55ø)	C, N, SI, SA	#SI5028MDG*	—	369.00	DG	70-300/4.5-6.6 Macro (58ø)	C, N, P, SI, SA	#SI703004*	\$25	144.00**		
DN 60/2.8 (46ø) Black or Silver	MFT, SE	#SI6028DN*	—	239.00	DG	70-300/4.5-6.6 APO Macro (58ø)	C, N, P, SI, SA	#SI703004DG*	—	179.00		
DG 70/2.8 EX Macro (62ø)	C, N, P, SI	#SI7028MDG*	—	499.00	DG	120-300/2.8 OS HSM (105ø)	C, N, SI	#SI120300*	—	3,599.00		
DG 85/1.4 EX HSM (77ø)	C, N, P, SI, SA	#SI8514*	—	969.00	DG	120-400/4.5-5.6 APO OS HSM (77ø) R	C, P, SI	#SI120400*	—	899.00		
DG 105/2.8 EX Macro OS HSM (62ø)	C, N, SI, SA	#SI10528MDG*	\$300	669.00**	DG	150-500/5-6.3 APO OS HSM (86ø)	C, N, P, SI, SA	#SI150500*	\$200	869.00**		
DG 150/2.8 EX APO Macro OS HSM (72ø)	C, N, SI, SA	#SI15028AMO*	—	1,099.00	DG	1.4x EX APO Tele-Converter	C, N, S	#SI14XDG*	—	249.00		
DG 180/2.8 EX APO Macro OS HSM (86ø)	C, N, SI, SA	#SI18028AMEO*	—	1,699.00	DG	2x EX APO Tele-Converter	C, N, S	#SI2XDG*	\$50	249.00**		
DG 300/2.8 APO EX HSM (46ø) Rear	C, N, P, SI, SA	#SI30028DG*	—	3,399.00								
DG 500/4.5 APO EX HSM (46ø) Rear	C, N, P, SI, SA	#SI50045DG*	—	4,999.00								
DC 8-16/4.5-5.6 HSM	C, N, S	#SI8164556*	\$50	649.00**	DG	EF-610 ST	C, N, P, SI, SA	#SIEF610ST*	\$30	135.00**		
DC 10-20/4.5-5.6 EX HSM (77ø)	C, N, P, SI, SA	#SI102045D*	\$80	399.00**	DG	EF-610 Super Flash	C, N, P, SI, SA	#SIEF610*	\$30	225.00**		
					DG	EM-140 TTL Ringlight	C, N, P, SI, SA	#SIEM140DG*	—	379.00		

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## Canon Digital Rebel T5i DSLR

- 3.0" Vari-Angle Touchscreen LCD
- Uses Canon EF Lenses (1.6x factor)
- SD/SDHC/SDXC Card Slot
- STM Lens Support for Quiet AF in Movies
- Full HD 1080 Video with Continuous AF
- ISO 100-12800, Expandable to 25600



\$150  
REBATE!

18 Mega  
Pixels

Rebates Expire 11-22-14	Price	Rebate	Final Cost
Kit with 18-55mm IS STM #CAEDRT5IK.....	849.99	\$150	699.99
T5i Kit with 18-55mm IS II #CAEDRT5K.....	549.99	\$50	499.99
T3i Kit with 18-55mm IS #CAEDRT3IK.....	599.99	\$50	549.99

## Canon EOS-70D DSLR

- Dual Pixel CMOS AF with Live View
- DIGIC 5+ Image Processor
- SD/SDHC/SDXC Card Slot
- Uses Canon EF & EF-S Lenses
- 3.0" Vari-Angle Touchscreen
- 7 fps Continuous Shooting
- Built-In Wireless Connectivity
- Full HD 1080p Video



\$200  
REBATE!

20 Mega  
Pixels

Rebates Expire 11-22-14	Price	Rebate	Final Cost
Body Only #CAE70D.....	1,199.00	\$200	999.00
Kit with 18-55mm STM #CAE70D1855.....	1,349.00	\$200	1,149.00
EOS 60D Body Only #CAE60D.....	899.99	\$200	699.99
EOS 60D Kit with 18-135mm IS #CAE60D18135.....	1,199.00	\$200	999.00

## Canon EOS-7D Mark II DSLR

- 3" Clear View II LCD • Native ISO 16000
- Dual Pixel CMOS AF with Live View
- Dual CF and SDHC/XC Card Slots
- Continuous 10 fps Shooting
- Built-In GPS Receiver & Digital Compass
- Full HD 1080p/60 Video & Movie Servo AF



NEW

20 Mega  
Pixels

Rebates Expire 11-22-14	Price	Rebate	Final Cost
Body Only #CAE7D2.....	1,799.00		
EOS 7D Body Only #CAE7D.....	1,499.00	\$500	999.99
EOS 7D Kit with 18-135mm IS #CAE7D18135.....	1,799.00	\$500	1,299.99
EOS 7D Kit with 28-135mm IS #CAE7D28135.....	1,699.00	\$600	1,099.99

## Canon EOS-6D DSLR

- Full-Frame CMOS Sensor • 3.0" LCD
- DIGIC 5+ Image Processor
- Uses Canon EF Lenses
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi and GPS Connectivity
- Full HD 1080p with Manual Controls
- Extended ISO Range of 50-102400
- Up to 4.5 Full Resolution FPS
- Built-In HDR & Multiple Exposure Modes



\$200  
REBATE!

20 Mega  
Pixels

Rebates (Mail-in) Expire 11-22-14	Price	Rebate	Final Cost
Body Only #CAE6D.....	1,899.00	\$200	1,699.00
Kit with 24-105mm f/4 L #CAE6D24105.....	2,499.00	\$200	2,299.00

## Canon EOS-5D Mark III DSLR

- 3.2" Clear View High Resolution LCD
- DIGIC 5+ Image Processor
- 61-Point High Density AF
- Uses Canon EF Lenses
- Dual CF, SD Card Slots
- Full HD 1080/30p & 720/60p Formats
- Extended ISO Range (50-102400)
- Built-In HDR & Multiple Exposure Modes



\$200  
REBATE!

22 Mega  
Pixels

Rebates (Mail-in) Expire 11-22-14	Price	Rebate	Final Cost
Body Only #CAE5D3.....	3,399.00	\$200	3,199.00
Kit with 24-105mm L IS #CAE5D324105.....	3,999.00	\$200	3,799.00

## Canon EOS-1Dx DSLR

- Dual DIGIC 5+ Image Processors
- Magnesium Alloy Body
- Eye-Level Pentaprism Viewfinder
- 3.2" LCD Monitor
- Uses Canon EF Lenses
- Dual CF card slots
- 1920 x 1080 HD Video Capture
- Live View Still and Video Recording
- 61-Point High Density Auto Focus



\$800  
REBATE!

18 Mega  
Pixels

Rebates (Mail-in) Expire 11-22-14	Price	Rebate	Final Cost
Body Only #CAE1DX.....	6,799.00	\$800	5,999.00

## Canon SLR Lenses and Flashes

Rebates (Mail-in) Expire 11-22-14 — Call for Current Rebates & Promotions

EOS Flash System	MAP	Rebate	Final
270EX II.....	169.99	\$30	139.99
320EX.....			
430EX II.....	299.99	\$50	249.99
600EX-RT.....	549.99	\$50	499.99
MR-14EX II Ringlight.....	549.99	\$50	499.99
MT-24EX Twin Flash.....	829.99	\$60	769.99



EF-S Digital Lenses	MAP	Mail-in Rebate	Final
24/2.8 STM (52ø).....	149.99		
60/2.8 USM Macro (52ø).....	469.99	\$50	419.99
10-18/4.5-5.6 IS STM (67ø).....	299.00		
10-22/3.5-4.5 USM (77ø).....	649.99	\$50	599.99
15-85/3.5-5.6 IS USM (72ø).....	799.99	\$100	699.99
17-55/2.8 IS USM (67ø).....	879.99	\$80	799.99
17-85/4-5.6 IS USM (67ø).....	CALL		
18-55/3.5-5.6 IS (58ø) II.....	199.99		
18-135/3.5-5.6 IS (67ø).....	499.99		
18-200/3.5-5.6 IS (72ø).....	699.99		
55-250/4-5.6 IS USM II (58ø).....	249.99		
55-250/4-5.6 IS STM II (58ø).....	299.99		

Not compatible  
with full frame  
cameras

EF Lenses	MAP	Mail-in Rebate	Final
20/2.8 USM (72ø).....	539.99	\$50	489.99
24/2.8 IS USM (58ø).....	599.99	\$50	549.99
28/1.8 USM (58ø).....	509.99	\$60	449.99
28/2.8 IS USM (58ø).....	549.99	\$100	449.99**
35/2 IS USM (67ø).....	599.99	\$50	549.99
40/2.8 STM Pancake (52ø).....	199.99	\$50	149.99
50/1.8 II (52ø).....	125.99	\$20	105.99
50/2.5 Macro (52ø).....	299.99	\$30	269.99
50/1.4 USM (58ø).....	399.99	\$50	349.99
MP-E 65/2.8 1x-5x Macro (58ø).....	1,049.00	\$100	949.99
85/1.8 USM (58ø).....	419.99	\$50	369.99
100/2 USM (58ø).....	499.99	\$100	399.99**
100/2.8 USM Macro (58ø).....	599.99	\$50	549.99
400/4.0 DO IS II USM (52ø).....	6,899.00		
24-105/3.5-5.6 IS STM (77ø).....	599.00		
28-135/3.5-5.6 IS USM (72ø).....	CALL		
70-300/4-5.6 IS USM (58ø).....	649.99	\$250	399.99**
70-300/4.5-5.6 DO IS USM (58ø).....	1,399.00		
75-300/4.0-5.6 III (58ø).....	199.99		
75-300/4.0-5.6 III USM (58ø).....	234.99		



TSE MF Lenses	MAP	Rebate	Final
17/4.0 L.....	2,249.00		
24/3.5 L II.....	1,649.00		
45/2.8.....	1,399.00		
90/2.8.....	1,399.00		

EF "L" Lenses	MAP	Mail-in Rebate	Final
14/2.8 USM II.....	2,249.00	\$100	2,149.00
24/1.4 II (77ø).....	1,649.00	\$100	1,549.00
35/1.4 USM (72ø).....	1,479.00	\$150	1,329.00
50/1.2 USM (72ø).....	1,549.00	\$150	1,399.00
85/1.2 USM II (72ø).....	2,099.00	\$100	1,999.00
100/2.8 IS USM Macro (67ø).....	949.99	\$100	849.99**
135/2.0 USM (72ø).....	1,049.00	\$50	999.00
180/3.5 USM Macro (72ø).....	1,499.00	\$50	1,449.00
200/2.8 USM II (72ø).....	779.99	\$30	749.99
200/2.0 IS USM (52ø).....	5,999.00		
300/4.0 IS USM (77ø).....	1,449.00	\$100	1,349.00
300/2.8 IS USM II (52ø rear).....	6,599.00		
400/5.6 USM (77ø).....	1,339.00	\$100	1,239.00
400/2.8 IS II (52ø rear).....	10,499.00		
500/4 IS USM II (52ø rear).....	9,499.00		
600/4.0 IS II (52ø rear).....	11,999.00		
8-15/4.0 Fish-eye USM.....	1,349.00	\$50	1,299.00
16-35/4 IS USM (77ø).....	1,199.00	\$100	1,099.00
16-35/2.8 USM II (82ø).....	1,699.00	\$200	1,499.00
17-40/4.0 USM (77ø).....	839.99	\$140	699.99
24-70/4.0 IS USM (77ø).....	999.99	\$250	749.99**
24-70/2.8 IS USM (82ø).....	2,099.00	\$150	1,949.00
24-105/4 IS USM (77ø).....	1,149.00		
28-300/3.5-5.6 IS USM (77ø).....	2,549.00		
70-200/4.0 USM (67ø).....	709.99	\$100	609.99
70-200/4.0 IS USM (77ø).....	1,299.00	\$200	1,099.00
70-200/2.8 USM (77ø).....	1,449.00	\$150	1,299.00
70-200/2.8 IS II USM (77ø).....	2,299.00	\$150	2,149.00
70-300/4.0-5.6 IS USM (67ø).....	1,449.00	\$100	1,349.00
100-400/4.5-5.6 IS USM (77ø).....	1,699.00	\$200	1,499.00

EF Teleconverters	MAP	Rebate	Final
1.4x III.....	449.99		
2x III.....	449.99		

\*\* with purchase of EOS-6D, 7D, 7D mkII, 70D, or 60D



## Nikon D3300 DSLR

Rebates Expire 11-22-14

- EXPEED 4 Image Processor
- Full HD 1080p Video Recording
- 3.0" LCD • 5 fps Shooting
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC/SDXC Card Slot
- Expandable ISO 25600
- Easy Panorama Mode and Guide Mode
- Nikon Inc. limited warranty included



D3300 is available in Black, Grey or Red

	Price	Rebate	Final Cost
Kit with 18-55mm VR II #NID33001855*	646.95	<b>\$100</b>	<b>546.95</b>
<b>D3200</b> Kit Black w/18-55mm VR #NID32001855*	529.95	<b>\$50</b>	<b>479.95</b>

## Nikon D5300 DSLR

- EXPEED 4 Image Processor
- Full HD 1080p Video at 60 fps
- 3.2" Vari-Angle LCD • ISO 100-25600
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi and GPS Connectivity
- Nikon Inc. limited warranty included



Rebates Expire 11-22-14

D5300 18-55 Kit is available in Black, Grey or Red

	Price	Rebate	Final Cost
Kit with 18-55mm VR II (B, G, R) #NID53001855*	896.95	<b>\$50</b>	<b>846.95</b>
Kit with 18-140mm VR (Black) #NID530018140	1,299.95	<b>\$250</b>	<b>1,049.95</b>
<b>D5200</b> Kit with 18-55mm VR #NID52001855*	799.95	<b>\$200</b>	<b>599.95</b>

## Nikon D7100 DSLR

- Magnesium Alloy Body
- Moisture Resistant
- EXPEED 3 Image Processor
- 1080p Full HD Video Capture
- Accepts Nikon AF Lenses (1.5x factor) • 3.2" LCD
- Dual SD/SDHC/SDXC Card Slots
- Built-In Flash with Commander Function
- Nikon Inc. limited warranty included



Rebates Expire 11-22-14

	Price	Rebate	Final Cost
Body Only #NID7100	1,199.95	<b>\$250</b>	<b>949.95</b>
Kit with 18-140mm VR DX #NID710018140	1,696.95	<b>\$450</b>	<b>1,246.95</b>

## Nikon D750 DSLR

- FX-Format (Full-Frame) CMOS Sensor
- Uses Nikon AF Lenses • 3.2" Tilting LCD
- EXPEED 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi Connectivity
- Full HD 1080p Video Recording at 60 fps
- Nikon Inc. limited warranty included



Rebates Expire 11-22-14

	Price	Rebate	Final Cost
Body Only #NID750	2,296.95	—	—
Kit with 24-120mm VR #NID75024120	3,596.95	<b>\$600</b>	<b>2,996.95</b>
<b>D610</b> Body Only #NID610	1,996.95	<b>\$400</b>	<b>1,596.95</b>
<b>D610</b> Kit with 24-85mm VRT #NID6102485	2,596.95	<b>\$600</b>	<b>1,996.95</b>

## Nikon D810 DSLR

- FX-Format CMOS Sensor • 3.2" LCD
- EXPEED 4 Image Processor
- Optical Low-Pass Filter
- CF & SD Dual Card Slots
- Nikon F Mount Lens Mount
- Expandable Sensitivity to ISO 51200
- Full HD 1080p Video at 60/30/24 fps
- External Mic and Headphone Inputs
- Continuous Shooting to 5 fps in FX Mode
- Multi-CAM 3500FX AF Sensor w/51 Points
- Nikon Inc. limited warranty included



Body Only #NID810	3,296.95	<b>36</b> Mega Pixels
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## Nikon D4s DSLR

- FX-format (full-frame) CMOS Sensor
- 14-Bit RAW Files & 12-Bit RAW S Format • 3.2" LCD
- Full HD 1080p Video at 60 fps
- EXPEED 4 Image Processor
- Compatible with Most Nikkor Optics
- 11 fps Shooting for 200 Shots with AE/AF • ISO 50-409600
- CF Type 1 & XQD Compatible
- 1000 Base-T Gigabit Wired LAN Support
- Nikon Inc. limited warranty included



Body Only #NID4S	6,496.95	<b>16</b> Mega Pixels
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## Nikon SLR Lenses and Flashes

Rebates Expire 11-22-14 — Call for Current Rebates and Promotions

### Nikon Instant Savings on Lenses with purchase of any Nikon DSLR

AF Flashes	Price	Rebate	Final
SB-300	146.95		
SB-500	246.95	<b>\$20</b>	<b>226.95</b>
SB-700	326.95		
SB-910	546.95	<b>\$50</b>	<b>496.95</b>
R1 Wireless Twin Flash			
R1C1 Wireless Twin Flash System			



DX ED-IF Lenses for Digital Only	Price	Rebate	Final
10.5/2.8 Fish-Eye	196.95		
35/1.8 G AF-S (52ø)	196.95		
40/2.8 G AF-S Micro (52ø)	276.95		
85/3.5 G ED VR Micro	526.95	<b>\$100</b>	<b>426.95</b>
10-24/3.5-4.5 G AF-S (77ø)			
12-24/4 G AF-S (77ø)			
16-85/3.5-5.6 G AF-S VR (67ø)			
17-55/2.8 G AF-S (77ø)			
18-55/3.5-5.6 G AF-S II (52ø)			
18-55/3.5-5.6 G AF-S VR (52ø)	196.95		
18-55/3.5-5.6 G AF-S VR II (52ø)	246.95		
18-105/3.5-5.6 G AF-S VR *	396.95	<b>\$100 *</b>	<b>296.95</b>
18-140/3.5-5.6 G AF-S VR **	496.95	<b>\$200 **</b>	<b>296.95</b>
18-200/3.5-5.6 G AF-S VR II	596.95	<b>\$100</b>	<b>496.95</b>
18-300/3.5-5.6 G AF-S ED VR (77ø)	996.95		
18-300/3.5-6.3 G AF-S ED VR (67ø)	896.95	<b>\$200</b>	<b>696.95</b>
55-200/4.5-5.6 G AF-S (52ø)			
55-200/4.5-5.6 G AF-S VR	246.95	<b>\$100</b>	<b>146.95</b>
55-300/4.5-5.6 G AF-S VR	396.95	<b>\$150</b>	<b>246.95</b>



D-Type AF Lenses	Price	Rebate	Final
50/1.4 D (52ø)			
50/1.4 G AF-S (58ø)	484.95	<b>\$85</b>	<b>399.95</b>
58/1.4 G AF-S (72ø)	1,696.95	<b>\$200</b>	<b>1,496.95^</b>
60/2.8 D Micro (62ø) (1:1)			
60/2.8 G AF-S ED Micro (62ø)	599.95	<b>\$100</b>	<b>499.95</b>
85/1.8 G AF-S (67ø)	496.95		
85/1.4 D IF (77ø)			
85/1.4 G AF-S (77ø)	1,699.95	<b>\$200</b>	<b>1,499.95^</b>
85/2.8 PC-E Micro (77ø)			
105/2.8 G AF-S ED-IF VR Micro (62ø)	984.95	<b>\$135</b>	<b>849.95^</b>
105/2.0 DC D with Hood (72ø)			
180/2.8 D ED-IF (72ø)			
200/4 D ED-IF Micro with Case (62ø)			
200/2 G AF-S ED-IF VR II (52ø)			
300/4.0 D AF-S ED-IF (77ø)			
300/2.8 G AF-S VR (52ø-R)			
400/2.8 G AF-S VR ED (52ø)			
500/4.0 G AF-S VR ED (52ø)			
600/4.0 G AF-S VR ED (52ø)			
14-24/2.8 G AF-S ED-IF	1,996.95	<b>\$300</b>	<b>1,696.95^</b>
16-35/4.0 G AF-S ED VR (77ø)	1,256.95	<b>\$260</b>	<b>996.95^</b>
17-35/2.8 D AF-S ED-IF (77ø)			
18-35/3.5-4.5 AF-S G ED (77ø)	746.95		
24-70/2.8 G AF-S ED-IF (77ø)	1,886.95	<b>\$300</b>	<b>1,586.95^</b>
24-85/2.8-4.0 D IF (72ø)			
24-85/3.5-4.5 G AF-S ED VR	596.95	<b>\$100 ^^</b>	<b>496.95</b>
24-120/4.0 G AF-S ED VR (77ø)	1,296.95		
28-300/3.5-5.6 G AF-S ED VR	1,046.95	<b>\$250</b>	<b>796.95^</b>
70-200/4.0 G AF-S ED VR (67ø)	1,396.95	<b>\$400</b>	<b>996.95^</b>
70-200/2.8 G AF-S ED-IF VR II (77ø)	2,396.95	<b>\$400</b>	<b>1,996.95^</b>
70-300/4.0-5.6 G (62ø)			
70-300/4.5-5.6 G-AFS VR	586.95	<b>\$200</b>	<b>386.95</b>
80-200/2.8 D with Collar (77ø)			
80-400/4.5-5.6 G AF-S ED VR (77ø)	2,696.95	<b>\$300</b>	<b>2,396.95^</b>
200-400/4 G AF-S ED VR II (52ø)			
TC-14E III (1.4x) Teleconverter			
TC-17E II (1.7x) Teleconverter			
TC-20E III (2x) Teleconverter			

\* Instant Savings ONLY when purchased with a D7100 body

\*\* When purchased with a D3200, D3300, D5200, D5300, D7100

^ When Purchased with D7100, D610, D750, DF, D810 D4s

^^ When purchased with D610 Rebate is \$200



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- ▶ Convenient free parking available

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## ▶ LENSBABY... SELECTIVE FOCUS LENSES

### Muse Fast and Loose

Ideal for tabletop and macro photography. Squeeze the Muse to focus, and bend your Sweet Spot around the photo.



for Canon, Leica, Nikon,  
Olympus, Pentax, Sony #LEMU\* ..... 149.95

### Composer Smooth and Precise

Ideal for tabletop and macro photography. Compress and bend the lens to find your desired Sweet Spot and lock it in place with the push of a button.



for Canon, Nikon, Olympus,  
Pentax, Sony #LELC\* ..... 199.95

## ▶ ZEISS MANUAL FOCUS LENSES

	Canon ZE		Nikon ZF.2	
15mm f/2.8 Distagon T* (ø)	#ZE1528ZEC	2,950.00	#ZE1528ZF2N	2,950.00
18mm f/3.5 Distagon T* (82ø)	#ZE1835ZEC	1,395.00	#ZE1835ZF2N	1,395.00
21mm f/2.8 Distagon T* (82ø)	#ZE2128ZEC	1,843.00	#ZE2128ZF2N	1,843.00
25mm f/2 Distagon T* (67ø)	#ZE252ZEC	1,699.00	#ZE252ZF2N	1,699.00
28mm f/2 Distagon T* (58ø)	#ZE282ZEC	1,283.00	#ZE282ZF2N	1,283.00
35mm f/1.4 Distagon T* (72ø)	#ZE3514ZEC	1,843.00	#ZE3514ZF2N	1,843.00
35mm f/2 Distagon T* (58ø)	#ZE352ZEC	1,117.00	#ZE352ZF2N	1,117.00
50mm f/1.4 Planar T* (58ø)	#ZE5014ZEC	725.00	#ZE5014ZF2N	725.00
50mm f/2 Makro-Planar T* (67ø)	#ZE502ZEC	1,283.00	#ZE502ZF2N	1,283.00
85mm f/1.4 Distagon T* (72ø)	#ZE8514ZEC	1,283.00	#ZE8514ZF2N	1,283.00
100mm f/2 Makro-Planar T* (67ø)	#ZE1002ZEC	1,843.00	#ZE1002ZF2N	1,843.00

## ▶ MANUAL FOCUS LENSES

NOTE: These lenses are compatible with autofocus cameras, but ONLY in manual-focus mode.

C = Canon EOS N = Nikon O = Olympus OM P = Pentax K SM = Sony/Minolta

	Available for	Price	Price
8mm f/3.5 Fisheye	C, N, P, SM #B0835S*	239.99	#ROFEB8M* 269.95
14mm f/2.8 WA	C, N, P, SM #B014*	349.99	#ROFE14M* 349.00
24mm f/1.4 WA (77ø)	C, N, P, SM #B02414*	499.95	#RORK24M* 599.00
35mm f/1.4 (77ø)	C, N, P, SM #B03514*	379.99	#RORK35M 499.00
85mm f/1.4 (72ø)	C, N, P, SM #B08514*	269.99	#R085M* 299.00
500mm f/8 Mirror w/Mount	C, N, P, SM #B05008K*	118.95	#R05008* 108.50
500mm f/6.3 Mirror w/Mount	C, N, O, P, SM #B050063*	152.95	#R050063* 129.95
800mm f/8 Mirror w/Mount	C, N, O, P, SM #B08008K*	249.95	#R08008* 188.50
650-1300mm f/8-16 w/Mount	C, N, O, P, SM #B06501300*	264.95	#R06501300* 247.95

## ▶ LENS COVERS

- Available with a custom fit for most popular lenses
- Clear, flexible window over the AF/IS/VR controls and the distance-scale window.
- Custom holes that reveal the red-dot for easy alignment to the camera body without removing the cover.
- Available in Black, Digital Camo, Forest Green Camo, Realtree Max4 HD, Hardwoods Snow or white for Canon lenses



## ▶ HOODIE LENS CAPS

The neoprene Hoodie features a reinforced removable front element protection disc made from rigid plastic and firm foam to protect your lens from dirt, dust, moisture, and impact.

\*\* Specify type of camouflage: Digital Camo, Forest Green, Realtree Max4 HD, or Hardwoods Snow



Size	SKU #	Black	Camo**
Medium	#LELCHM*	13.99	18.99
Large	#LELCHL*	13.99	18.99
X-Large	#LELCHXL*	14.99	19.99
2XL	#LELCH2XL*	15.99	20.99
3XL	#LELCH3XL*	17.99	22.99
4XL	#LELCH4XL*	24.99	29.99

## ▶ FLASHES

### Shoe-Mount Flashes

24 AF-1 Digital	89.99
28 CS-2 Digital Slave Flash	139.99
36 AF-5 Digital	129.99
44 AF-1 Digital	199.99
52 AF-1 TTL Touchscreen	300.00
58 AF-2 TTL Digital	399.99
64 AF-1 Digital	449.99

### Handle-Mount Flash Systems

45 CL-4 TTL Digital	519.99
76 MZ-5 TTL Digital	1,039.99



Q-flash TRIO	875.00
Q-flash T5D-R	706.00
Q-flash T5D-R with Turbo SC Battery & Charger	1,057.00
Q-flash T5D-R with Turbo 3 Battery Kit	1,330.00

### Batteries

Battery 1	224.00
Turbo SC - Slim Compact	351.00
Turbo Blade	466.00
Turbo 3	624.00



E-Flash Flat Panel Kit #SFP38	58.95
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### Shoe-Mount AF Flashes

PF20XD Digital Slave	44.95
RD-2000	64.95
DF3000 Digital for Canon, Nikon, Sony	69.95
PZ-4000 AF TTL	89.95
PZ-40x II AF TTL for Nikon (Silver)	69.95
PZ-42x AF TTL for Canon or Nikon	139.00

### Handle-Mount Flashes

622 Super Pro TTL	179.95
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285HV Professional Auto	84.95
Pearstone SB-4 AC Adapter for 285HV #PESB4	14.95

## ▶ METERS

### GOSSEN

DigiFlash 2	199.99
Starlite 2	719.99
Digi Pro F2	299.99
DigiSky	469.99



KFM-1100 Auto Meter	349.00
KFM-2200 Cine & Flash Meter	699.90



Polaris Digital Exposure	189.95
Polaris Dual 5	294.99



L208 Twin Mate	126.00
L308DC Digidigimetre	279.00
L308S Flashmate	233.00
L478D Lifemaster Pro	339.00
L758DR Digital Flashmaster	634.00
C500 Prodigy Color	1,216.00
C500 Prodigy with Module	1,338.00

### 58 AF-2 TTL Shoe-Mount Flash

- Guide No. 58'
- Full TTL Mode
- Zoom Head (24-105)
- Bounce Head
- Swivel Head
- Update via USB Port
- Secondary Reflector with 3 Output Ratios
- Weight: 12.8 oz



### PZ-42x AF TTL Shoe-Mount Flash

- Guide No. 138'
- Bounce and Swivel Head
- Automatic Shutdown Mode
- Large Illuminated LCD panel
- AF Assist Light
- Weight: 9.1 oz



### 285HV Professional Auto Shoe-Mount Flash

- Guide No. 120'
- Automatic exposure range to 70'
- 4 auto f/stop settings
- Bounce Head
- Zoom Head (28-105)



### Qflash TRIO Parabolic Reflector Flash

- Radio Wireless TTL
- Bounce & Swivel Head
- Guide No. 110'
- Built-In FreeWire
- High-Speed Sync
- TTL compatible



### Turbo Blade Battery Pack with Charger

- Shoe Mount Recycling: 1/10-1.5 sec
- Less Than 15 Ounces
- 1/4"-20 Top/Bottom Mounts
- 1.5 Hour Recharging
- Blade-thin: Only 1.44" Height



### L-358 Flash Master Digital Incident, Reflected & Flash Lightmeter

- Weatherproof
- Built-in adjustable incident dome
- Rotating 270° Receptor Head
- Weight: 5.4 oz



### Portable Flash Accessories

#### Universal Softbox

- Softens and Diffuses Light



Small #VEFD300  
Medium #VEFD310  
Large #VEFD320

#### Light Bouncers

- Fits Nearly Any Portable Flash
- Basic #VEFD200  
Plus #VEFD210



#### Snoot/Reflectors

- Use As a Snoot or Reflector

5" #VEFD400  
8" #VEFD410



#### Honeycomb Grids

- Tightens Light Beam
- 1/8" #VEFD600  
1/4" #VEFD610





## Canon Powershot S120

- 5x Optical Zoom • 4x Digital Zoom
- 5.2-26mm f/1.8-5.7 (35mm equiv: 24-120mm) • 3.0" Touchscreen LCD
- SD/SDHC/SDXC Card Slot
- Full HD 1080/60p Video • ISO 12800
- Enhanced Wi-Fi Capabilities

#CAPSS120B\* ..... **449.99**



12 Mega Pixels

## Canon Powershot SX50 HS

- 50x Optical Zoom • 4x Digital Zoom
- 4.3-215mm f/3.4-6.5 (35mm equiv: 24-1200mm) • 2.8" Vari-Angle LCD
- SD/SDHC/SDXC Card Slot
- Full HD 1080p Video with Stereo Sound
- High Speed AF Focuses in 0.19 sec Expires 11-22-14

#CAPSSX50..... **429.99... Less \$30 Rebate...399.99**



12 Mega Pixels

## Canon Powershot G16

- 3.0" LCD • Full HD 1080/60p Video
- 5x Optical Zoom • 4x Digital Zoom
- 6.1-30.5mm f/1.8-2.8 (35mm equiv: 28-140mm) • SD/SDHC/SDXC Card Slot
- Enhanced Wi-Fi Capabilities
- Continuous Shooting at 9.3 fps

#CAPSG16..... **499.99**



12 Mega Pixels

## Nikon Coolpix L830

- 3.0" Tilttable LCD • 19 Scene Modes
- 34x Optical Zoom • 68x Digital Zoom
- 4-136mm f/3.0-5.9 (35mm equiv: 22.5-765mm) • SD/SDHC/SDXC Card Slot
- Full HD 1080/60i Video & Stereo Sound
- Hybrid Vibration Reduction

Black or Red #NICPL830\*..... **299.95... Less \$70 Rebate...229.95**



18 Mega Pixels

## Nikon Coolpix P530

- 3.0" Tilttable LCD • 19 Scene Modes
- 34x Optical Zoom • 68x Digital Zoom
- 4-136mm f/3.0-5.9 (35mm equiv: 22.5-765mm) • SD/SDHC/SDXC Card Slot
- Full HD 1080/60i Video & Stereo Sound
- Hybrid Vibration Reduction

#NICPP530\*..... **449.95... Less \$100 Rebate..349.95**



16 Mega Pixels

## FUJIFILM X30

- 2.8" LCD • Die-Cast Magnesium Alloy
- Full HD 1080 Video at 60fps
- 4x Optical Zoom • ISO 100-12800
- 7.1-28.4mm f/2-2.8 (35mm equiv: 28-112mm) • SD/SDHC/SDXC Card Slot
- Film Simulation and Advanced Filters

Black or Silver #FUX30\*



12 Mega Pixels

## OLYMPUS Stylus XZ-2 iHS

- 3.0" Swiveling Touchscreen LCD
- 4x Optical Zoom • 2x Digital Zoom
- 6-24mm f/1.8-2.5 (35mm equiv: 27-108mm) Lens • 11 Air Filters
- SD/SDHC/SDXC Card Slot
- Full HD 1080p Video Recording

#OLXZ2B



12 Mega Pixels

## Panasonic Lumix DMC-FZ70

- 3.0" LCD • SD/SDHC/SDXC Card Slot
- Full HD 1080i AVCHD Video at 60 fps
- 60x Optical Zoom • 5x Digital Zoom
- 3.58-215mm f/2.8-5.9 (35mm equiv: 20-1200mm) DC Vario Lens
- Creative Controls, Panorama, and Retouch

#PADMCFZ70B\*



16 Mega Pixels

## Panasonic Lumix DMC-LX7

- 3.0" LCD • SDHC/SDXC Card Slot
- Full HD 1080 Video Recording
- 3.8x Optical Zoom • 7.5x Digital Zoom
- 4.7-17.7mm f/1.4-2.3 (35mm equiv: 24-90mm) Leica Vario-Summilux Lens
- RAW and RAW+JPEG Recording Options

Black or White #PADMCLX7\*



10 Mega Pixels

## SONY CyberShot DSC-HX50V

- 3.0" Xtra Fine LCD
- Full HD 1080/60p AVCHD Video Capture
- 30x Optical Zoom • 60x Digital Zoom
- 4.3-129mm f/3.5-6.3 (35mm equiv: 24-720mm) Lens • SD/SDHC Card Slot
- Built-in Wi-Fi and GPS

#SODSCHX50VB



20 Mega Pixels

## SONY CyberShot DSC-RX100 III

- 3.0" Multi-Angle Xtra Fine LCD
- 2.9x Optical Zoom • 11x Digital Zoom
- 8.8-25.7mm f/1.8-2.8 (35mm equiv: 24-70mm) Carl Zeiss Vario-Sonnar T\* Lens
- MS Pro Duo/Pro HG-Duo, SDHC/SDXC Card Slot • Full HD Video • Built-In Wi-Fi with NFC

#SODSCRX100M3



20 Mega Pixels

## SONY Cyber-shot DSC-RX10

- Built-In Wireless and NFC Connectivity
- 8.8-73.3mm f/2.8 (35mm equiv: 24-200mm) Carl Zeiss • 3.0" Tilting LCD
- Full HD 1080/p Video at 60 and 24 fps
- MS Duo/Micro, microSDHC Card Slots
- Super Sonicwave Motor for Fast Autofocus

#SODSCRX10B



20 Mega Pixels

## MEMORY CARDS

### CF Compact Flash

	Delkin				Kingston		Lexar		Sandisk		
	500x	700x	1000x	1050x	Ultimate 266x	Ultimate 600x	800x	1066x	Ultra 50MBs	Extreme 120MBs	Extreme Pro 160MBs
16GB	29.95	37.95	49.95	—	19.64	32.96	40.95	48.95	49.95	48.00	69.95
32GB	44.50	59.95	79.95	89.95	29.95	49.95	54.95	82.99	94.99	69.50	99.95
64GB	84.50	72.50	139.95	159.95	49.95	—	84.95	149.95	—	98.95	199.50
128GB	—	—	199.95	229.95	254.95	—	194.95	249.98	—	219.95	349.99
256GB	—	—	—	—	—	—	399.95	585.98	—	—	649.95
512GB	—	—	—	—	—	—	899.00	—	—	—	—

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High-speed file transfer to meet the demands of broadcast, cinema, and photography.

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		256GB.....	\$1,299.99

### XQD High-Speed for Nikon D4

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	Professional 1100x	1333x	N Series 125MBs	S Series 180MBs
32GB	189.95	222.49	99.95	195.06
64GB	308.95	349.95	189.95	298.95

### SDHC Secure Digital High Capacity

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	Pro Class10	Micro Class 4 Mobility	Standard Class 4	Micro Class 4
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8GB	9.95	7.09	6.95	7.95
16GB	10.95	11.46	9.95	8.95
32GB	17.95	19.31	17.95	16.95

### UHS1 Ultra High Speed

	Delkin	Kingston	Lexar	Sony	Sandisk	Micro	Micro	Class 10	Micro	Kingston	Sandisk	Sony	Delkin	Sandisk
	600x	633x	Class 10 300x	Class 10 400x	Class 10 600x	Micro 633x	Extreme 60MBs	Extreme Pro 95MBs	Micro 60MBs	94MBs	13.49	8.99	U3 280MBs	Extreme Pro 280MBs
SDHC 8GB	16.95	17.95	—	10.95	—	—	17.41	21.95	—	—	—	—	—	—
16GB	19.95	31.95	14.50	14.95	19.95	23.95	26.95	33.76	26.73	19.95	11.95	24.50	19.95	—
32GB	29.95	44.95	24.50	23.95	29.95	37.95	37.95	47.95	39.74	33.50	16.99	39.95	29.95	—
SDXC 64GB	54.95	84.95	44.50	42.95	51.95	66.95	74.95	98.95	74.95	66.95	36.95	84.95	—	—
128GB	119.95	—	96.95	79.95	79.95	—	144.99	—	—	—	—	—	189.95	—
256GB	—	—	—	—	299.95	—	—	—	—	—	—	—	359.95	—
512GB	—	—	—	—	—	—	—	—	—	—	—	—	729.00	—

Note: Not all devices support SDXC cards

### UHS1 Speed Class 3 (U3)

	Kingston	Sandisk	Sony	Delkin	Sandisk
	90MBs	Extreme 60MBs	Extreme Pro 90MBs	U3 280MBs	Extreme Pro 280MBs
4GB	—	—	—	—	—
8GB	—	—	—	—	—
16GB	—	—	—	—	—
32GB	—	—	—	—	—



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## Tripods with Ball Head

- Detachable Leg and Column Form Monopod
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- Grooved center column • Bubble Level/s
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- Included padded carry bag

Model	Ball Head	Load Capacity	Max. Height	Folded	Weight	SKU #	Price
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AT-3421	BA-106T	6.6 lb	59"	16.8"	2.7 lb	#OBAT3421106T	\$159.95
AT-3431	BA-108T	8.8 lb	61.3"	17.3"	2.8 lb	#OBAT3431108T	\$199.95
AT-3441	BA-111T	11 lb	63.4"	17.5"	3.5 lb	#OBAT3441111T	\$249.95
AT-3451	BA-113T	13.2 lb	65.5"	18.1"	3.6 lb	#OBAT3451113T	\$289.95
AT-3461	BA-117T	17.6 lb	67.1"	18.9"	4.5 lb	#OBAT3461117T	\$299.95
<b>6x Carbon Fiber Tripods</b>							
CT-3431	BE-108T	8.8 lb	59.5"	17"	2.5 lb	#OBCT3431108T	\$399.95
CT-3451	BE-113T	13.2 lb	61.3"	17.1"	2.5 lb	#OBCT3451113T	\$479.95
CT-3461	BE-117T	17.6 lb	64.5"	17.4"	3.1 lb	#OBCT3461117T	\$479.95
CT-3481	BE-126T	26.4 lb	68"	18.9"	3.8 lb	#OBCT3481126T	\$499.95
CT-3521	BE-106T	6.6 lb	56.4"	14.8"	2.4 lb	#OBCT3521106T	\$379.95
CT-3531	BE-108T	8.8 lb	60.8"	15.5"	2.5 lb	#OBCT3531108T	\$399.95
CT-3551	BE-113T	13.2 lb	62.4"	16"	2.6 lb	#OBCT3551113T	\$469.95
CT-3561	BE-117T	17.6 lb	64.3"	16.8"	3.1 lb	#OBCT3561117T	\$349.95
CT-3581	BE-126T	26.4 lb	67.9"	16.9"	3.9 lb	#OBCT3581126T	\$369.95



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for Canon 60D .....	BG-C6	#VEBGC6.....	\$69.95
for Canon T5i, T4i, T3i, T2i .....	BG-C5.2	#VEBGC5.2.....	\$67.95
for Nikon D7100.....	BG-N11	#VEBGN11.....	\$89.95
for Nikon D5300.....	BG-N13	#VEBGN13.....	\$59.95
for Nikon D3300, D3200.....	BG-N12	#VEBGN12.....	\$59.95
for Nikon D600, D610.....	BG-N10	#VEBGN10.....	\$79.95
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PHOTOGRAPHY ACCESSORIES



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Circular Polarizer	23.95	29.95	34.95	42.95	38.90
Circular Polarizer HMC	39.95	49.00	55.90	69.00	104.90
"Moose" Warm Circular Polarizer	35.75	39.55	53.90	55.65	91.50
K2 Yel, XO Yel/Gm, Gm X1, Or G, Red 25A HMC	23.95	28.35	41.95	46.35	60.90
Close-Up Set (+1, +2, +4)	39.99	47.35	53.00	63.00	68.00
Close-Up Set HMC (+1, +2, +4)	52.68	64.88	73.00	100.68	145.35
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Neutral Density 2x, 4x, 8x HMC	23.88	19.95	36.95	30.99	34.80
Star 8, Star 8	16.89	22.50	43.35	49.90	46.68

<b>Filter Stack Caps</b> 49mm.....	10.95	52mm.....	10.95	55mm.....	10.95	58mm.....	14.95
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056 Star 8	25.71	32.14	—
083/830 Diffuser 1	30.70	—	—
120 Grad G1 Grey	32.53	37.66	—
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122 Grad B1 Blue	32.53	33.44	72.68
125 T2 Tobacco	32.53	33.44	72.68
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ND 0.6	48.95	50.95	69.95	99.95	119.95
Soft FX3	56.95	63.95	82.90	119.95	139.95
Star 4 pt 2	64.95	56.95	74.90	109.95	129.95

## ► B+W

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400H 120 Roll.....	160 220 PP (5).....
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	400 120 Roll.....
	400 220 Roll.....
	400 220 PP (5).....
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	800 120 Roll.....

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100 135-36.....6.25	
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## 14 Individual Background Color Options



## Floor Drops - Realistic Backgrounds for the Floor or Wall

Floor Drops are amazingly lifelike, detailed, and realistic studio backgrounds for the floor. Easily create the look and feel of location shots in the studio. Floor Drops are printed on quality polyester, with a heavy-duty 1.5mm non-slip rubber back.



1.5mm thick, non-slip rubber backing



Roll up for easy transport & storage



Use as a floordrop or as a backdrop

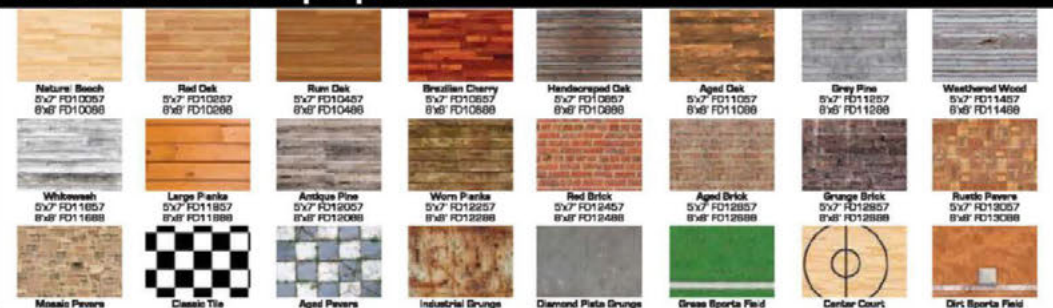


Available in 5'x7' or 8'x8' to fit any studio



Very realistic polyester printed surface

## 24 Realistic Floor Drop Options





## Green Screen Kits

### Green Screen Software Kit

Easily remove green screens from digital photos with this user-friendly software.

- Green Screen Wizard PC & Mac Software

- 720 Digital Backgrounds

Part #DBK720



### Green Screen Photo Creator Kit

- 5'x7' Green Screen Backdrop with removable hanging hooks

- Green Screen Wizard PC & Mac Software

- 720 Digital Backgrounds

Part #DBSK100



### Green Screen Digital Photo Kit

- 5'x6' Collapsible Backdrop. Chroma Green/Blue Screen Reversible Backdrop

- 8' Backdrop Stand

- Green Screen Wizard PC & Mac Software

- 720 Digital Backgrounds

Part #DPK100



## Green Screen Video Kits

### Green Screen Video Suit With FREE Sony Movie Software

- Sony Movie Studio Platinum - Key out green screens from videos & produce spectacular HD & 3D movies, burn to Blu-ray Disc™ or author DVDs.

- Quality Green Screen Suit with mesh face, & zippered closures

Med #VIDGSMD  
Large #VIDGSLG



### Green Screen Basic Video Background Kit

- 10'x12' Muslin Green Screen

- Sony Movie Studio Platinum Key out green screens from videos & produce spectacular HD & 3D movies, burn to Blu-ray Disc™ or author DVDs.

Part #VID1012



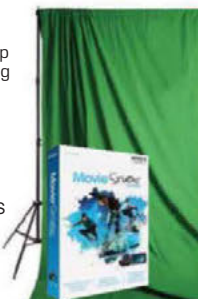
### Green Screen Premium Video Background kit

- 10'x24' Muslin Green Screen

- Port-a-Stand - Portable Backdrop Stand & Carry Bag

- Sony Movie Studio Platinum

Part #VID1024-PAS



## Studio Background Kits

### Seamless Paper Background Kit

- 53" x 12 yard White Seamless Paper
- Port-a-Stand - Portable Backdrop Stand
- Heavy Duty Carry Bag

Part # 62037-50



### Collapsible Background Kits

- 5'x6' Collapsible Backdrop & Carry Bag
- 8' Backdrop Stand

#### Muslin Style

- Royal Tone
- Lakeside
- Monsoon
- Indigo Nights
- Spring Essence
- Earth Tone

#### Solid Style

- Black/White
- Dark Gray/Lt Gray
- Chroma Green/Blue

#### Retro Style

- Retro Red
- Retro Purple
- Antique Brown
- Retro Green
- Retro Blue
- Retro Black/White

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- CB102-Kit
- CB104-Kit
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- CB112-Kit
- CB114-Kit
- CB116-Kit

#### Part #

- RCB200-Kit
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- RCB208-Kit
- RCB210-Kit



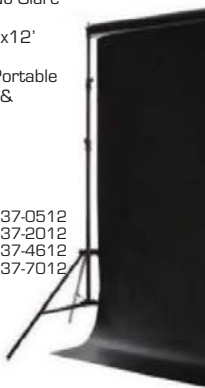
### Vinyl Background Kits

- Professional Quality Vinyl
- Matte Finish - No Glare
- Easily cleaned
- Vinyl Sized to 5'x12'

- Port-a-Stand - Portable Backdrop Stand & Carry Bag

#### Color Options

- White Vinyl 62037-0512
- Black Vinyl 62037-2012
- Green Vinyl 62037-4612
- Gray Vinyl 62037-7012



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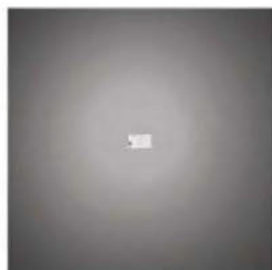
# the OMNI™ Reflector

by PAUL C. BUFF™

- Multi-purpose modifier system for all shooting styles
- 18" diameter "sweet spot" size for snappy contrast
- Optimal for sports shooting up to 80'
- 30° even coverage with smooth feathering
- Perfect for overpowering the sun from a distance
- Included 3-layer diffuser sock forms perfect "RoundBox" with ultra-even face illumination for stunning catchlights and rendering of silver, glassware, etc. - beats all softboxes
- 120° extremely even coverage with sock - optimal for close-in low key lighting, or for wide coverage of groups or large products
- Fits all standard BUFF™ flash units



**OMNI™ 18-inch Reflector**  
includes the reflector and  
triple-layer diffusion sock  
**\$79.95**



**FIGURE ONE • DIRECT**  
COVERAGE ANGLE = 30°  
F32+ @10', ISO100, 640WS  
F5.6 @ 80', ISO200, 640WS



**FIGURE TWO • W/DIFFUSER**  
COVERAGE ANGLE 120°  
F11 @10', ISO100, 640WS  
F4 @30", ISO100, 5WS



**FIGURE THREE • W/20° GRID**  
COVERAGE ANGLE = 20°  
F8+3/10 W/DIFFUSER, 10'  
F22+6/10 W/NO DIFFUSER, 10'



**FIGURE FOUR • FACE VIEW**  
VERY EVEN ILLUMINATION  
+/- 1/4f ACROSS SURFACE  
PERFECTLY ROUND SHAPE

## FIGURE ONE . . . DIRECT REFLECTOR PATTERN

Very even 30° coverage with smooth feathering. Extreme output is ideal for overpowering the sun and for sports and other uses requiring long light-to-subject distances (f8 achievable at 56', ISO200 for gyms, etc.).

For girl-on-the-beach shots, light placement of 14' to 20' eliminates the unnatural look and wind-prone nature of soft boxes and umbrellas, yet still allows f16 - f22 exposure (ISO100, 640WS).

Also useful for high-key shooting in the studio and on location, from a modestly large, punchy light source.

## FIGURE TWO . . . WITH INCLUDED 3-LAYER DIFFUSER SOCK

Exceedingly even 120° coverage and manageable exposure levels makes this the perfect choice for high-key, mid-key and group lighting. *Your go-to studio modifier.*

The 18" diameter is considered ideal by many pros for sweet-spot contrast, specularly and shadow control.

Relatively low output and buttery-smooth coverage make this configuration ideal for beauty dish style, close-in lighting (f4 is achieved at 30", 5WS, ISO100).

We suggest using the OMNI™ plus diffuser in place of beauty dishes or softboxes for many shooters. Still more control and 6/10f lower output is obtained by adding the accessory 20° grid spot.

## FIGURE THREE . . . PATTERN WITH OPTIONAL 20° GRID (optional 20° honeycomb grid sold separately) \$79.95

Use the grid directly on the OMNI™ for high output Hollywood style selective lighting with superior spill control and isolation.

For close-in mood lighting, place the grid over the triple layer diffuser to further reduce the output to achieve high fall-off, high contrast, low key lighting effects. Reduces the light output another 2/3f stop, allowing even closer placement at wide-open apertures. No "dark center" typical with beauty dishes.

## FIGURE FOUR . . . FACE VIEW WITH INCLUDED DIFFUSER

OMNI™ is designed such that the light rays strike the surface of the included diffuser evenly - from center to edges. This detail is ignored in most other reflectors.

The result is a degree of evenness across the diffuser face that is unrivalled by the best softboxes or beauty dishes, yielding an extremely even, perfectly round light-source for great catchlights and beautiful rendering of reflective objects such as silverware, vases, etc. High diffusion reduces light output to allow low depth-of-field shooting with close light-to-subject distances.

Adding the optional 20° honeycomb grid (sold separately) over the diffuser further reduces output and eliminates spill light for even closer lighting, enhanced mood and soft/selective lighting.

**www.PAULCBUFF.com toll free 1-800-443-5542**

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